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THE UNIVERSITY OF ALBERTA

AFFECT, COGNITIVE STYLES, AND CAUSAL ATTRIBUTIONS FOR SUCCESS AND FAILURE

by

© WILLIAM R. AVISON

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research, for acceptance, a thesis entitled Affect, Cognitive Styles, and Causal Attributions for Success and Failure submitted by William R. Avison in partial fulfilment of the requirements for the degree of Doctor of Philosophy.

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ABSTRACT

In recent years, psychologists have examined the ways in which human beings attribute causation. One focus of their research has been the consideration of the manner in which people assign causation for other persons' successes and failures. Two problems have arisen in this area. First, most studies have restricted themselves to laboratory investigations. There are, as yet, few studies that have tested attribution theory propositions in more natural settings. Second, there have been few attempts to determine whether relatively stable cognitive predispositions of the attributor influence the assignments of causation for success or failure. This dissertation attempts to address both of these issues.

After reviewing the theoretical roots and major statements of the attribution paradigm, a selected review of the literature is presented. Attention is focused on four potential correlates of the attribution of causation: judgments of an actor's success or failure, the attributor's appreciation of the actor, the attributor's locus of control orientation, and his degree of psychological differentiation. Additionally, the potential effects of selected interactions upon causal assignments are considered. The result of this discussion is the generation of eleven hypotheses.

In order to test these propositions outside the laboratory, a sample of university students was exposed to a motion picture. After viewing the film, each person was interviewed. The subjects were asked questions which were designed to measure their affective

reactions to a character in the film, their judgments of that actor's success or failure, and their attributions of causation for the character's achievement. Each subject also completed tests of locus of control and psychological differentiation.

The results of the investigation indicate that the attribution theory predictions that were tested do obtain outside the laboratory. In turn, this suggests that it may be fruitful to test other attribution principles in non-experimental settings that are less artificial.

The data also suggest that in ambiguous attributional settings, an individual's locus of control and degree of psychological differentiation may predispose him to structure in some manner the information derived from his conceptions of the situation. Since little attention has been paid to the impact of psychological differentiation upon the attribution of causation, this represents an interesting contribution.

In addition to these results, the data indicate that an individual's judgment of an actor's success and his appreciation of that actor may overlap. As well, the relationship between locus of control and psychological differentiation is examined. While these two constructs are not correlated linearly or curvilinearly, there is evidence to suggest that these variables, in interaction, may affect the assignment of causation.

The dissertation concludes with a discussion of the implications of this research. The issues of concept fragility, instrument fragility, and trait-situation interactions are considered. Additionally, it is

argued that there may be advantages in testing attribution theory in more natural settings.

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CHAPTER 1

THE ATTRIBUTION OF CAUSATION

Many of our attempts at explaining the world and acting upon those explanations assume that some things cause others to occur. In the physical world, we try to account for spontaneous combustion, the solidification of water, and day and night. In the medical world, we search for the causes of cancer, heart diseases, and the common cold. In the social world, we still assume causation when we think about people's behavior. Thus, we look for causes of crime, conflict, success, and failure.

Psychologists have identified two interrelated, but separable sources of the assignment of causation. Many have argued that some causal relations can be directly perceived (Tolman and Brunswik, 1934; Michotte, 1963; Attneave, 1974; Mackie, 1974; Harre and Madden, 1975). That is, they assert that the human organism has the capacity to sense causal connections "intuitively" and "immediately." This has suggested to some psychologists that the assignment of causation on this level may be built into our physiologies.

However, there are situations in which we are unable to directly perceive causal relationships. As we are removed from sensing such relationships, there is consensus that we cognitively assign causes to actors and actions.

Students who have examined the cognitive assignment of causation have assumed a perspective similar to Hume's. They have conceived of causation as an attribution rather than as something that is directly perceived.

> For Hume, the initial human experience is the impression.... From these impressions the individual derives simple ideas which exactly represent, and which are always preceded by their corresponding impressions. Since similar ideas and impressions are in constant conjunction, he concludes that one may come to believe that there is a connection between our many ideas and impressions which cannot arise from chance and, therefore, that there is a dependence as well. Thus, the perception of cause and effect is anchored in the psychological nature of the organism...(Lanna, 1969:13-14).

There is now a considerable literature that attempts to order the ways in which individuals attribute causation. What follows is a summary of the theoretical roots and major premises of attribution theory.

A. THE CONCEPT OF COGNITION

The meaning of the term, cognition, is vague; that is, it has many referents. A survey of the literature in cognitive psychology indicates that many students use the terms cognition, perception, and conception as synonyms while others consider these to be separate psychological processes. What follows is a discussion of the ways in which these terms have been used and a specification of the way in which they will be employed in this dissertation.

In Chaplin's Dictionary of Psychology (1968:87), cognition is defined as

> ...a general concept embracing all forms of knowing. It includes perceiving, imagining, reasoning, and judging. Traditionally, cognition was contrasted with conation or willing and with affection or feeling.

This appears to be the definition most frequently used by cognitive psychologists. In his cognitive psychology text, Neisser (1967:4) refers to cognition as:

> All the processes by which the sensory input is transformed, reduced, elaborated, stored, recovered, and used. It is concerned with these processes even when they operate in the absence of relevant stimulation, as in images and hallucinations. Such terms as sensation, perception, imagery, retention, recall, problem-solving, and thinking, among many others, refer to hypothetical stages or aspects of cognition.

Neisser notes the breadth of this definition and suggests the possibility that every psychological phenomenon is a cognitive one. He conceives cognition to be the structuring or constructing of auditory and visual stimulus information. Thus, for Neisser, cognition also involves the utilization of higher mental processes such as memory and thinking. It seems, therefore, that cognition is an omnibus term. It subsumes a host of human processes that enable the individual to function in reaction to the world around him.

Many psychologists have argued that cognition has become an obsolete term. They have suggested that it is more fruitful to discuss cognitive behavior in terms of more specifically defined processes. For example, Gardiner (1973:v) has argued that:

> The two terms perception and thinking are not cognate—perception refers to a product, whereas thinking refers to a process. Starting with the standard procedure of trying to define my subject matter, I found that "perceiving" and "thinking" have many meanings and that those meanings often over-lapped. It finally occurred to me that I had succumbed, along with most of my colleagues, to the fallacy

> that, if a word exists, there exists a phenomenon corresponding to it. It gradually dawned on me, too, that "perceiving" and "thinking" (as well as their near-synonyms "cognition," "higher mental process," and so on) are simply blanket terms for the complex processes of the nervous system that we do not yet understand....

Like other psychologists, Gardiner views cognition as a composite of other psychological processes: perceiving and thinking. In a similar vein, George (1962) considers cognition to be composed of perceiving, learning, thinking, reasoning, and remembering. French (1963) argues that it is important for the cognitive psychologists to distinguish perception from inference.

A reading of Neisser, Gardiner, George, and French suggests that there is concensus concerning the role of perception as an antecedent of "higher-level" cognitive processes. Beyond this agreement, there is also some convergence of thought concerning the nature of perception. Perception is generally considered to refer to the organization of sensations that impinge upon our sensoria. At present, a large segment of the research literature in psychology consists of studies that document the existence of various perceptual principles (cf. Krech et al., 1969).

However, a problem arises in designating a particular term that describes cognitive behavior that is not simply perceptual. Following Nettler (1974a-h), we have chosen to use the term, conception, to refer to these processes. Chaplin (1968:99) defines conception as the process of forming an idea or a meaning. In this sense, conception is often mediated by the manipulation of symbols and signs; however, it is also possible to think of conceptions that have no perceptual referents. Nettler (1974d:3) has suggested that:

> We can conceive of human action as involving a gradient of behaviors from those totally perceptual (i.e., not dependent upon the intervention of concepts) to those totally conceptual (i.e., involving solitary meditation,

> symbol-manipulation, without referring the symbols to anything empirical). Any particular class of human action between these extremes may be the consequence of a running mixture of perceiving and conceiving. As one's skills become habituated—in sport, for example—they become less concept-based and more perceptually-rooted. In the course of a game we may think of tactics, between plays in particular, but in the heat of the action thinking had better take a back seat to the proceeding and the other-doing. Thinking (conceiving) can obstruct perception and reduce the efficiency of habituated actions—as per the sad story about the thoughtful centipede.

For any behavior, then, there will be a differential mix of perception and conception. For example, riding a bicycle or playing tennis may involve more perception than conception. On the other hand, answering a test or writing a term-paper is primarily a conceptual task; the only perceptual referents may be the symbols that one encounters while reading and contemplating the task. This notion of conception subsumes other processes such as learning, thinking, imagining, and inferring. Each of these types of cognitive processes will vary in the perceptual-conceptual mixture depending upon the particular task confronting the individual.

Distinguishing conception from perception is important in this dissertation. As we have mentioned earlier, some psychologists have demonstrated that certain causal connections as "known" on the purely percpetual level; others have argued that many of man's causal assignments are inferred or attributed. That is, the identification of causal relationships involves conceptual processes.

Therefore, it is essential that we use the terms perception and conception with care. In one sense, those psychologists who study social perception or person perception have been imprecise in the use of terminology. This is not to say that they are necessarily unaware of the distinctions between these two concepts. For example, Secord and Backman (1964:49) note:

> Person perception focuses on the process by which impressions, opinions, or feelings about other persons are formed. Although the term has come into common usage, perception...implies the use of direct sensory information, and hence it is not completely appropriate in the present context [the assessment of others' intentions and motives, etc.]. Often an opinion concerning the other person is not based on direct observation of him but on statements by others or on knowledge of who he is. Moreover, opinions, evaluations, or feelings involve subjective judgment and inference that go beyond the kind of direct sensory impressions that characterize perception. Because of its wide acceptance, however, we will continue to use the term person perception to refer to these diverse phenomena.

It would seem, then, that much of person perception is a mixture of perception and conception. While the exact proportions of this mixture are indeterminate and may vary from one situation to another, much of what we call attribution, social judgment, and inference is conception.

The importance of this perception-conception distinction stems from our earlier observations that some causal relationships may be perceived intuitively and immediately while others are cognitively assigned; that is, they are conceived. In subsequent sections of this chapter, we intend to review critically the various hypotheses advanced by social psychologists on the conception of causal relationships. Many of these researchers use "perceiver" synonomously with "attributor," "judge," or "observer." Strictly speaking, this implies a contradiction to the notion of the cognitive assignment of causation. In the interest of avoiding this difficulty, we shall employ only the the latter three terms synonomously with "conceiver."

B. THEORETICAL PRECURSORS OF ATTRIBUTION THEORY

The idea of causation as an attribution or a cognitive assignment is not new to social psychology. While Jones and Davis (1965) and Kelley (1967) have attempted to develop a comprehensive explanation of the attribution of causation, this subject has concerned social psychologists for years. Indeed, the development of social psychological theory has been marked by attempts to explain particular segments of the process by which causation is conceived. What Kelley, Jones, and Davis have accomplished is a synthesis of these various perspectives.

Jones et al. (1972:x) have argued that:

> Attribution theory grows out of a number of converging lines of inquiry in social psychology. The research along these lines can be roughly classified according to emphasis on certain broad concerns:
>
> [1] The factors motivating the individual to obtain causally relevant information,
> [2] the factors determining what cause will be assigned for a given event, and
> [3] the consequences of making one causal attribution rather than another.

Festinger's (1954) social comparison theory is the major source of literature on motivating factors. This perspective represents an expansion of some of the ideas expressed by Heider (1958) in his theory of interpersonal relations. Heider's (1944, 1958) analysis of naive psychology and theory of interpersonal relations focus on "attribution" and "balance" as these relate to the assessment of ability, intention, and task difficulty. It is his work which forms the foundations for much of the theory that explicates how particular causes are assigned for a given event. Finally, attribution theorists have borrowed considerably from the realm of cognitive dissonance

(Festinger, 1957; Brehm and Cohen, 1962; Aronson, 1969) in developing hypotheses about the cognitive ramifications of attributing causation.

What follows is a critical examination of the theoretical roots of attribution theory. Given the classificatory scheme suggested by Jones et al., we propose to assess the various contributions to the study of motivators, determinants, and consequences of causal attributions. Such a review will not necessitate a detailed consideration of every theory in its entirety. Rather, we shall be most concerned with those aspects of social psychological perspectives that relate directly to the attribution of causation.

The Determinants of Causal Attributions

Of all the contributions to attribution theory, Heider's has been the most important. Heider's interest in the attribution of causality is expressed in his paper, "Social Perception and Phenomenal Causality" (1944) in which he argues that principles of perceptual organization may be applied to the study of social behavior. His argument centers on the thesis that human beings seek to attain an orderly view of the world. They do so through the use of "naive psychology," the attribution of variable or transient behaviors to invariant underlying conditions. Thus, one's success or failure at a particular task would be understood in terms of greater or lesser ability or effort, relatively stable dispositions of the actor. For Heider, the attribution of a cause for a particular behavior represents a "unit relation." Thus, the invocation of causal unit relations makes the world intelligible to the conceiver.

Heider argues that persons commonly conceive of social situations as caused by the dispositions of involved individuals. This is more likely to occur as the similarity between an action and a person is greater. Thus, bad behaviors are frequently associated with bad actors. As an example, Heider (1944:364) observes that "...a joke made by an individual considered silly will usually seem silly, while the same joke made by a person with the reputation of being witty will arouse laughter." In this example, the evaluation of the individual's disposition influences the assessment of the act. The converse may also occur: a person who tells a silly joke may be conceived of as silly. Inferences about one's disposition are made from one's act. Heider argues that these inferential tendencies are to be explained as instances of the perceptual predisposition of Pragnanz: perception is directed towards minimizing the differences between stimuli (the act and the disposition) or, beyond some threshold of disimilarity, maximizing them.

Heider argues that the organization of acts and dispositions into causal unit relations is of great importance to the individual. If an individual is to attach meaning to changes that occur in various social relationships, he is assisted if he makes causal inferences from acts to dispositions and vice-versa.

Given that individuals live in a social environment that is in constant flux, Heider (1944:372) concludes that:

> ...a change in the environment gains its meaning from the source to which it is attributed. This causal integration is of major importance in the organization of the social field. It is responsible for the formation of units which consist of persons and acts and which follow the laws of perceptual unit formation.

> Similarity and proximity favor the attribution of acts to persons; and established person-act units make for assimilation or contrast between the parts. Tensions within the person can influence this social causal integration.

Out of his concern with the ways in which individuals make causal inferences, Heider (1958) developed a theory of interpersonal relations. In particular, we are interested in how this theory explains the process by which an individual attaches meaning to a heteronomous event, an event that is open to more than one interpretation by the conceiver. For example, if a person is viewed to be successful at a particular task, the observer may explain that success as a function of the task's simplicity or the actor's skill. A significant portion of Heider's theory of interpersonal relations seeks to develop a framework for examining this type of contingency.

According to Heider, any action may be thought of as a combination of environmental forces and personal forces. For Heider, the object of his theoretical exercise is to explain how individuals choose between personal and environmental causes. Dispositional (personal) properties are composed of two distinguishable dimensions: ability and effort.

> Whether a person tries to do something and whether he has the requisite abilities to accomplish it are so significantly different in the affairs of everyday life that naive psychology has demarcated those factors still further by regrouping the constituents of action in such a way that the power factor and the effective environmental force are combined into the concept "can," leaving the motivational factor [referred to as trying by Heider] clearly separate and distinct (Heider, 1958:83-84).

Can implies that there is no environmental force sufficiently great which could prevent the completion of an act attempted by an

individual. It incorporates characteristics such as ability and power and is viewed by Heider to be a dispositional concept.

Trying is at once a directional and a quantitative concept. That is, it entails consideration of what the actor is trying to do (intention) and how hard he is trying (exertion or effort). It is this concept of trying that propels action in a particular direction. As a motivational factor, it embodies the notion of personal causality when it is used in a dispositional context.

The synthesis of effort and ability as the fundamental components of personal force is central to Heider's theory. Purposive action, by definition, cannot occur without the existence of these two dispositions. This notion is of utmost importance for the theory of interpersonal relations because

> ...the fact implicit in naive psychology [is] that can and try are the conditions of action. Thus, our reactions will be different according to whether we think a person failed primarily because he lacked adequate ability or primarily because he did not want to carry out the action. In the first case, we will expect him to succeed as soon as the condition "can" is fulfilled. Moreover, we may bring this condition about by making the task easier, by removing obstacles, by teaching the person requisite skills, and so on. In the second case, however, we will not expect the person to perform the action even when such changes are realized (Heider, 1958:123).

Thus, our conceptions of whether or not an individual has ability and exerts some effort will influence our inferences about him. These inferences may, in turn, have significant impact upon our behavior towards him.

Having described the personal forces that may be attributed, Heider turns to a discussion of environmental ones. He specifies two types of environmental forces: task difficulty and luck. Task

difficulty is assessed through knowledge of group performance. If the conceiver notes that only individuals with much ability can succeed at a particular task, he concludes that the task is difficult. According to Heider, exertion is an important sign of task difficulty. Heider (1958:90) gives an example:

> When we see a person performing a skilled act, like dancing or diving or playing a musical instrument with elegance and ease, we may feel that the task is probably not so hard after all. Only our rational knowledge about "what it takes" checks us from this tempting conclusion; we modify our interpretation and say "It looks so easy."

If only a few people can successfully perform a task, the conceiver is likely to conclude that it is difficult and that the successful performers have considerable ability. If many can succeed, the conclusion is likely to be that the task is easy. Thus, assessments of task difficulty have direct implications for the inference of dispositions.

Luck and opportunity refer to less permanent conditions of the environment. For Heider (1958:91),

> ...when the success is attributed to luck or opportunity, two things are implied: First, that environmental conditions, rather than the person, are primarily responsible for the outcome, and second, that these environmental conditions are the product of chance; at least, this is true for "luck."

As for task difficulty, knowledge of performance is the key to whether the attributor assigns the cause of an act to luck or opportunity. If a person fails at the same task over repeated trials but succeeds once, that success is likely to be attributed to luck. From Heider's viewpoint, it is easier to make this kind of judgment than to change one's assessment of another's ability on the basis of one occurrence.

Other conditions contribute to the likelihood of such assignments of causation. Any success by an individual judged to have little ability will usually be attributed to luck. Additionally, individuals for whom the conceiver has positive sentiment will be judged unlucky when they fail; disliked actors will be attributed luck when they succeed.

Having described some of the key concepts in Heider's theory, two comments are in order. First, it should be noted that the underlying model of causal attribution is a variation of J.S. Mill's method of difference: "...the effect is attributed to that condition which is present when the effect is present and which is absent when the effect is absent" (Deutsch and Krauss, 1965:31). Such a model in this context often requires that social comparisons be made. Heider (1958:152-155) provides only a skeletal description of this process. It was Festinger's (1954) work that elaborated this part of the theory of interpersonal relations; his theory of social comparison processes will be discussed in subsequent sections of this chapter.

The second point to be made is that Heider's description of attributional tendencies is embedded in a context that stresses stability and balance. The element of stability is emphasized through Heider's notion that individuals tend to adhere to their judgments of others' dispositions. That is, once a particular disposition has been inferred (for example, ability), the causal explanation of actions that are discordant with that disposition (for example, failure) will appeal frequently to environmental loci (for example, bad luck). In turn, this amplifies Heider's concern for the notion of cognitive balance. He defines a balanced state as "...a

harmonious state, one in which the entities comprising the situation and the feelings about them fit together without stress" (Heider, 1958:180). Cognitive balance is illustrated using the p-o-x system where p is a person who evaluates and reacts toward o, another person, and x, some object associated with o. If p likes o and approves of x, and o produced x, the system is balanced. Imbalance could occur if p likes o and approves of x but o failed to produce x. As an example, let us assume that Teacher p likes Student o; however, if Teacher p sees that Student o failed an Examination x, there may be cognitive imbalance for the teacher. In order to rectify this, Teacher p may attribute the poor performance of Student o to bad luck or other environmental forces. In this way, the unit relation between o and x is made more acceptable to the teacher and cognitive balance is approached.

Thus, the attribution of causal relationships occupies a central role in Heider's description of the ways in which human beings organize their conceptions of the world. It is the assertion of Jones et al. (1972:xi-xii) that:

> It is to Heider more than any other single individual that attribution theory can be "attributed." His early paper on phenomenal causality (1944) emphasized the human motive to stabilize the perceived environment by appropriate cause-effect assignments.... In his influential Psychology of Interpersonal Relations (1958), the naive analysis of action, intention, ability, and environmental properties is more central than the concept of "balance."

Criticisms of Heider. While Heider's work is rich with propositions and distinctive in its use of naive psychology, one should be cautious

in treating it as a general theory of interpersonal relations. Heider's main thrust is toward describing factors that influence our judgments or conceptions of the social world. As Shaw and Costanzo (1970:150) note:

> Although Heider noted the relevance of these perceptions and interpretations for interpersonal behavior, he failed to consider in detail the connections among perceptions, attributions, and interpersonal behavior.

Indeed, his major goal has been to analyze verbal behavior. We are reminded by various social psychologists (Deutscher, 1966; Acock and DeFleur, 1972) that the correspondence between what one says and what one does is not necessarily perfect. It seems, then, that our actions may belie our conceptions under some circumstances. This lack of correspondence may undermine the utility of Heider's formulation as a predictor of behavior. While Heider's theory may function adequately as an ex post facto explanation of how we conceive our social world, we would do well to be cautious in considering the impact of attributions upon behavior.

There are other difficulties with Heider's formulation. He assumes that people act consistently in inferring causal unit relations from the data that reaches them. Specifically, Heider proposes that individuals consistently make use of the method of differences. There are at least two problems with this assumption. First, the method is not specified adequately nor is its formulation experimentally formulated (Deutsch and Krauss, 1965:33). In particular, Heider fails to provide a satisfactory explanation for the operation of the method of differences when an individual has insufficient information. As we

shall see shortly, the integration of Festinger's theory of social comparisons with Heider's partially solves this problem.

The second difficulty with Heider's assumption is that it may underestimate the impact of emotions. While Heider describes the method of differences as a subjective judgment that precedes causal inference, the process is described as a systematic, rational analysis of information whereby data is evaluated. However, calling a method "subjective" does not explain away the influence of emotions such as extreme like or dislike, fear, or happiness. Such effects may alter an individual's evaluation of a particular datum and, therefore, need to be considered within the context of the method of differences. It is somewhat ironical that Heider does not devote much consideration to these possibilities given that later chapters of his book focused explicitly on the effects of sentiments on interpersonal relations. More recent research has considered these influences; those studies that are germain to our problem will be examined later.

Summary. Heider has developed a theory that attempts to describe how individuals identify an underlying causal network that makes sense of the world. By means of his "naive analysis of action," Heider discusses the ways in which causal unit relations are developed. One of his prime concerns is to explain how people come to attribute causation to personal rather than environmental loci. In so doing, Heider maps the relationships among concepts such as ability, power, intention, and effort; he attempts to demonstrate how these are assessed by the conceiver through the method of differences. Additionally, concepts relating to

external loci of causation, task difficulty and luck, are introduced into the paradigm.

The Motivation to Attribute Causation

While Heider describes how we infer causation in social situations, he has failed to provide a convincing answer as to why we do so. To say that we do so in order to make sense of the world may be true; however, it is not enlightening. In attempting to answer this question, attribution theorists refer us to Festinger's (1954) theory of social comparisons and to Schacter's (1959) extension of this viewpoint to the evaluation of emotions.

The Theory of Social Comparisons. Festinger's (1954) perspective is underwritten by the idea that individuals possess a drive to evaluate their own abilities. Attribution researchers have accepted this assumption and appear to have expanded its scope. They imply that people are also driven to evaluate others' abilities or that they assess others' merits when examining their own.

A person may assess his ability in two ways: by appraising the "object reality" of his performance or by evaluating its "social reality." The former occurs in situations where there is an obvious means of directly assessing ability. Thus, an individual can evaluate his ability to sprint by timing himself in a one hundred-yard dash; there is an "objective reality." On the other hand, an appeal to "social reality" occurs in cases where the ability to be assessed cannot be objectively evaluated. Instances in which this may occur relate to the evaluations of abilities such as musical creativity or

to the assessments of one's opinions or characteristics. The "social reality" criteria are, in essence, the opinions of others about the relative merits of the individual seeking evaluation.

Festinger asserts that objective means are used for evaluation whenever possible; however, when this cannot occur, individuals adjudicate their abilities and opinions by comparing them with those of other people. Thus, subjective evaluations of oneself will be unstable when neither objective nor social bases for comparisons are available.

Of the possible people with whom an individual might compare himself, Festinger hypothesizes that the tendency will be to look toward similar persons. As the discrepancy between an individual's ability and another person's increases, the probability of comparison for evaluative purposes will subsequently decrease. Here, there is an underlying assumption that greater accuracy of evaluation will accrue when the differences between individuals are small.

While Festinger argues that the basic comparative processes are similar for attitudes and opinions, he also notes that there are critical distinctions. He believes that individuals possess a "unidirectional drive upward" regarding their abilities, a tendency that is not so with opinions. By this, he means that there are widespread norms that encourage individuals to do better. At the same time, there are non-social restraints that limit a person's latitude in altering his ability.

These conditions create an apparent conflict. The normative "push" to improve runs counter to the need for precise evaluations of one's ability which is achieved by making comparisons with others who

are similar to oneself. According to Festinger (1954:125):

> The resolution of these two pressures, which act simultaneously, is a state of affairs where all the members [of a comparison group] are relatively close together with respect to some specific ability, but not completely uniform. The pressures cease acting on a person if he is just slightly better than the others. It is obvious that not everyone in a group can be slightly better than everyone else. The implication is that, with respect to the evaluation of abilities, a state of social quiescence is never reached.

Thus, competitive behavior emerges and the need to re-evaluate occurs once more.

The contributions of Festinger's theory of social comparisons to attribution theory are twofold. First, he provides us with some insights into why people seek to attribute causation for their own (and others') behaviors:

> A person's cognition (his opinions and beliefs) about the situation in which he exists and his appraisals of what he is capable of doing (his evaluation of his abilities) will together have bearing on his behavior. The holding of incorrect opinions and/or inaccurate appraisals of one's abilities can be punishing or even fatal in many situations (Festinger, 1954:117).

Thus, the evaluation of one's abilities has survival value. For attribution theorists, Festinger's perspective describes how abilities so often become a central concern of an individual. Such evaluations occur in response to the need to survive and the tendency to compete. This "drive" to assess one's ability through social comparisons motivates persons to attribute causation. It is at this point that Festinger's work interfaces with Heider's. Having comparatively assessed one's ability (or lack of it), it is a logical step to explain this evaluation by reference to personal or environmental sources of causation.

Festinger's second contribution to attribution theory stems from a consideration of two of his premises. His hypothesis of a "unidimensional drive upward" with respect to ability implies that successes are more likely to be considered due to competence. This occurs because abilities judged in the present portend future improvement, a culturally desirable condition. In the case of failure, the normative pressures to improve are not met. Festinger suggests implicitly that an individual might escape from this apparent violation of betterment by appealing to more changeable conditions such as motivation, task difficulty, or luck. It is at this point that Heider's analysis of the assignment of causation becomes meaningful.

Criticisms of Festinger. There are at least four questionable ideas in Festinger's theory of social comparisons. The first relates to Festinger's vague use of the term "drive." It is not clear whether one should take this concept to mean a biologically determined predisposition or to interpret it as a normative pressure due to socialization. Furthermore, even if a definition of this term was further specified, it is not clear that Festinger's hypothesis that individuals possess a drive to evaluate their abilities is a testable one.

Deutsch and Krauss (1965) have raised two important criticisms. They argue that

> ...there is no reason to believe that appraisal of one's opinions, abilities, or emotions is likely to be more accurate if one's knowledge is confined to comparison with others who are similar. Self-location on a scale of ability may be aided by knowing something about the extreme positions on the scale as well as knowing where one stands relative

> to others who are similar (Deutsch and Krauss, 1965:67).

It should also be added that Festinger does not elucidate the means by which individuals judge the similarity of others nor does he consider the implications of a misconception of similarity for his theory.

A third criticism that may be directed toward Festinger's assertion that the need for an objective assessment of one's abilities or opinions stimulates social comparison processes. Deutsch and Krauss (1965:67) maintain that the opposite causal relationship may apply equally:

> Thus, it may be because opinions and abilities are compared socially within a group (because it is functionally useful for the group to assign group tasks in terms of the comparative abilities of its members) that a person needs to evaluate his opinions or abilities.

Last, issue may be taken with Festinger's assumption that objective means of evaluation are used whenever possible. This denies that human beings are often more concerned with <u>what ought to be</u> than with <u>what is</u>. There is a considerable body of literature that describes the tendencies for some people to sacrifice objective views of the world in favor of subjective lenses that paint pictures in a more satisfying (though less accurate) hue (Gabor, 1961; Avison and Nettler, 1976; Avison, forthcoming).

As we shall see shortly, attribution theorists have avoided most of these problems in their use of Festinger's ideas. By focusing on the actual process of causal attribution through social comparisons, they do not need to consider whether this process is the result of "drives." Furthermore, many students of attribution have examined the

process of social comparison and causal assignment in contexts where comparisons with similar others have not been possible. They do not take for granted Festinger's assumption that greater accuracy of appraisal results from comparison with similar persons. Finally, most attribution theorists do not assume that the need for an assessment of one's abilities leads to social comparison processes; rather, they have viewed these two processes as being correlated without assuming any causal order.

In general, the main contribution of Festinger's theory of social comparisons lies in its specification of the nature of such comparative assessments. His framework also generates some predictions that are similar to those that may be deduced from Heider's perspective. Thus, the integration of these two approaches is attained with no logical contradictions.

Summary. Festinger's theory describes how people evaluate their abilities or opinions via social comparisons. Given normative pressures to do better and non-social limitations on the malleability of ability, competition and the desire to re-evaluate oneself occur repeatedly. Despite some criticisms of this perspective (which attribution theorists have been careful to avoid), Festinger provides an analysis that supplements Heider's description of the assignment of causality in social situations.

The Consequences of Causal Attribution

The third line of thought that has contributed to the development of attribution theory is represented by Aronson's (1969) essay on

cognitive dissonance theory in which the major statements of Festinger (1957, 1964) and Brehm and Cohen (1962) are summarized. For students of attribution, cognitive dissonance theory has import in explaining the consequences of making causal assignments. Once causal attributions are made, these conceptions may have consequences for the attributor's subsequent cognitions or behaviors. Thus, the major intersection of attribution and cognitive dissonance theories occur with respect to post-decisional effects. In this sense, then, our concern with dissonance is restricted to those cases in which causal assignments lead to conceptions that are cognitively inconsistent for the conceiver. Such post-decisional inconsistency may lead to (1) reconsideration of conceptions that are at odds with the attribution or (2) re-attribution of causation so that such assignments are in accord with other conceptions. Cognitive dissonance theory is used by attribution theorists to describe the dynamics leading to such reconceptions.

Dissonance theory rests on the assumption that human beings are rationalizing animals. They strive to reduce the inconsistencies or contradictions among their various conceptions. The core notion in dissonance theory is that

> ...dissonance is a negative drive state which occurs whenever an individual simultaneously holds two cognitions (ideas, beliefs, opinions) which are psychologically inconsistent. Stated differently, two cognitions are dissonant ff, considering these two cognitions alone, the opposite of one follows from the other. Since the occurrence of dissonance is presumed to be unpleasant, individuals strive to reduce it by adding "consonant" cognitions or by changing one or both cognitions to make them "fit together" better; i.e., so that they become more consonant with each other (Aronson, 1969:2-3).

This statement of the perspective requires elaboration. First, the term "negative drive state" is vague. A reading of the literature in cognitive dissonance leads one to conclude that this phrase refers to a particular state experienced by a person: the individual is disconcerted or uncomfortable because he holds ideas that are contradictory. In this sense, the "negative drive state" is an affective state that induces an individual to reduce the psychological inconsistency which he experiences.

The other vague concept in cognitive dissonance is the term "psychological inconsistency." Festinger (1957) is imprecise in describing what he means by this term. As Aronson (1969:5-6) has argued, the boundaries of what is to be considered inconsistent are not well-formulated because Festinger deals with psychological, not simply logical, inconsistencies:

> It would be easy to specify dissonant situations if the theory were limited to logical inconsistencies. There exist relatively unequivocal rules of logic which can be applied without ambiguity or fear of contradiction. But recall that the inconsistency that produces dissonance, although it can be logical inconsistency, is not necessarily logical. Rather, it is psychological inconsistency. While this aspect of the theory increases its power, range, and degree of interest, at the same time it also causes some serious problems.

Festinger (1957) delineates four types of situations in which dissonance may occur:

(1) Logical inconsistency: Two conceptions are dissonant when the conceiver notes that they are contradictory in terms of logic. This may occur when syllogistic reasoning "breaks down." For example, if a person believes that all men are mortal but also holds that he, as a man, will never die, dissonance could arise. Of course, this depends

upon the individual's ability to grasp the principles of logic. That is, there are individuals who cannot think logically and, therefore, would not experience dissonance in analogous situations.

(2) Cultural mores: If an individual acts in a manner that is at odds with his conception of his society's normative standards, dissonance may result. In another sense, Festinger implies that deviant or inappropriate behavior may yield dissonance.

(3) Inconsistency between a conception and a more encompassing one: If a person believes that it is also preferable to tell the truth but finds himself in a situation where lying to his wife about his extra-marital involvements is advantageous, dissonance may obtain. In such a case, the more encompassing idea (truth-telling is preferable) is at odds with a more specific notion (lying to the spouse may avoid conflict).

(4) Past experience: If one's present conception of a situation is not in accord with his past experiences of similar occasions, inconsistency or dissonance might arise. If one tells a joke to a group of people and they are not amused, dissonance might occur if, in the past, the same joke had provoked laughter.

In essence, Festinger is suggesting that cognitive dissonance may occur when two conceptions are in disagreement. However, Aronson (1969:7) is correct in noting that "...a knowledge of the kinds of situations in which dissonance can occur is not always useful in determining whether dissonance does occur." An important question, then, is "What are the signs of cognitive dissonance?" Festinger (1957:31) argues that "...behavior changes, changes of

cognition, and circumspect exposure to new information and new opinions" are indicative of post-decisional dissonance.

Given these vague indicators of cognitive dissonance, Festinger (1964) takes the position advocated by Brehm and Cohen (1962) that commitment is necessary for the experience of inconsistency; that is, a particular decision will not engender dissonance unless the individual is committed to that decision. However, the definition of "commitment" creates even more difficulties. Festinger (1964) asserts that a decision implies a commitment if it "unequivocably affects subsequent behavior." The usefulness of this concept is thereby relegated to ex post facto explanations and descriptions. A reading of Brehm and Cohen (1962:7) is no more helpful:

> A person is committed when he has decided to do or not do a certain thing, when he has chosen one (or more) alternatives and thereby rejected one (or more) alternatives, when he actively engages in a given behavior or has engaged in a given behavior.

Deutsch and Krauss (1965) appear to be correct when they interpret these social psychologists to be saying that a person is committed to a decision when he makes a decision!

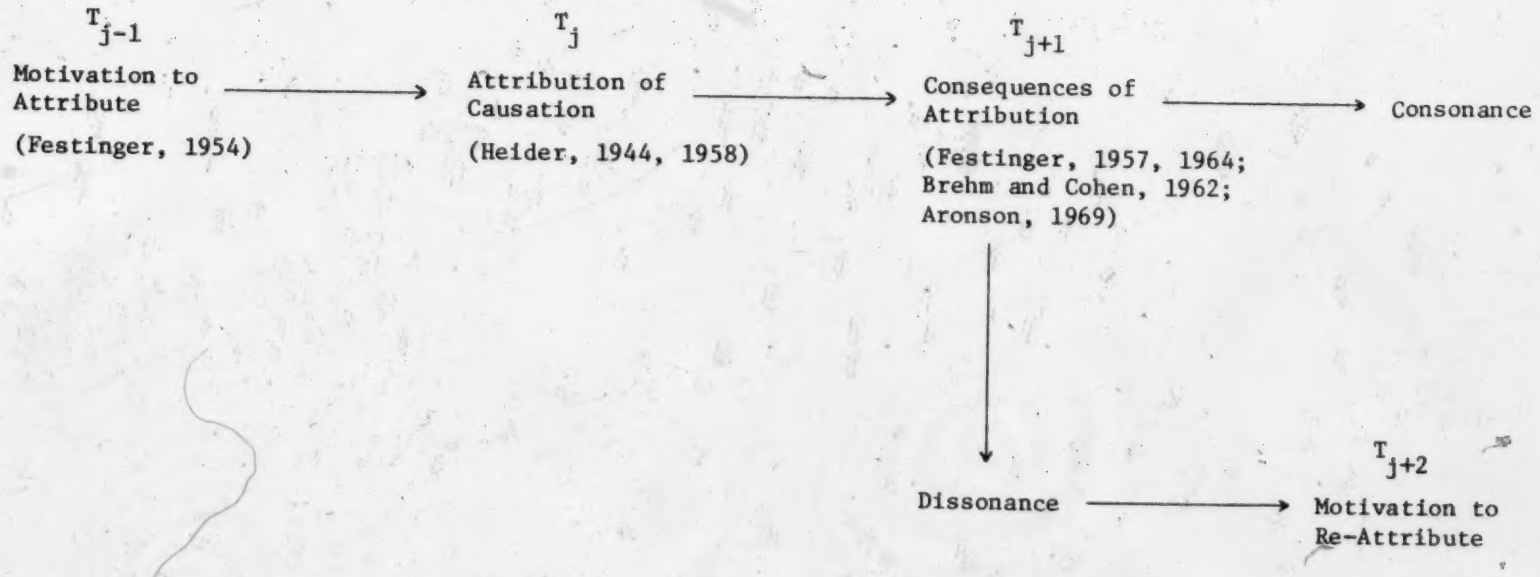
Despite the lack of specificity that plagues cognitive dissonance theory, students of attribution attach importance to it as a means for conceptualizing some of the possible consequences of assigning causation in social situations. Some attributions may produce cognitive dissonance which, in turn, may lead the conceiver to alter or reconsider his attributions so that consonance may be obtained. Thus, attribution theory is concerned here with the notion that attempts to map reality may motivate further endeavors to assign causation in social situations.

Conclusion

There are several notions which are shared by the three theoretical perspectives that we have reviewed. The theories of interpersonal relations, social comparisons, and cognitive dissonance are all concerned with the issue of psychological consistency. Each of these theories is in some way interested in the processes by which individuals conceive their environments and themselves in a manner that produces the fewest contradictions. All develop from the premise that human beings "need to know."

Beyond the particular contributions that these three perspectives have made to attribution theory, they have been integrated to provide a means by which attribution notions may be applied at all points in the temporal sequence of conceiving the world. Attributions made at any point in time, T_j, are explained in the attribution theory framework using ideas derived from Heider's theory of interpersonal relations. Attribution theory, however, attempts to consider what factors motivated the conceiver to search for causally important information. This serach is assumed to have occurred previous to the assignment of causal unit relations; i.e., at time T_{j-1}. Festinger's theory of social comparisons is of utility in accounting for the conceptual process at this stage. Concern with the consequences of causal attributions refers to events that must occur at T_{j+1}. Cognitive dissonance theory provides a vague framework for considering this segment. If dissonance occurs, one consequence may be the re-evaluation of the situation. Thus, we come full circle in the process (see Figure 1). In this sense, attribution theory offers a

FIGURE 1: A TIME SEQUENCE MODEL OF THE ATTRIBUTION PROCESS



dynamic approach for describing how people make causal inferences about their social wrold.

Additionally, these three orientations provide a focus for theoretical elaborations and empirical evaluations of the attribution approach.

> At a very general level, [these] lines of work... are based on three assumptions:
>
> I. The individual attempts to assign a cause for important instances of his behavior and that of others; when necessary, he seeks information that enables him to do so.
>
> II. His assignment of causes is determined in a systematic manner.
>
> III. The particular cause that he attributes for a given event has important consequences for his subsequent feelings and behavior. The "meaning" of the event and his subsequent reaction to it are determined to an important degree by its assigned cause (Jones et al., 1972:xi).

It is these three assumptions that are expanded upon in attribution theory through a synthesis of the theories which we have examined.

C. FORMAL STATEMENTS OF ATTRIBUTION THEORY

The most important statements of attribution theory have come from two sources. Jones and Davis (1965) have developed a theory of correspondent inferences while Kelley (1967) has constructed a theory of external attribution. While both theories attempt to describe how people make causal inferences, they ask different but related questions. The theory of correspondent inferences is concerned with how people attribute causation to other people; the theory of external attribution attempts to describe how people assign causation to external or environmental conditions. In Kelley's (1967:209) terms,

> ...the observer's focus in the two cases is essentially at opposite ends of the person-environment polarity. In my earlier analyses, dealing respectively with the self-environment and the other-environment problems, the person is concerned about the validity of an attribution regarding the environment. He applies the several criteria in an attempt to rule out person-based sources of "error" variance. In the problems specified by Jones and Davis, the observer has exactly the opposite orientation. He is seeking for person-caused variance (that caused by the particular actor under scrutiny) and in doing so, he must rule out environmental or situation-determined causes of variations in effects.

Despite this major difference, attribution theorists view these two perspectives to be complementary rather than competitive perspectives. What follows is a discussion of their respective contents.

Jones and Davis' Theory of Correspondent Inferences

Within their theoretical framework, Jones and Davis (1965: 222-223) aim

> ...to construct a theory which systematically accounts for a perceiver's inferences about what an actor was trying to achieve by a particular action. In achieving this purpose [they] view the action as occurring within a particular situational context which defines, in large part, its meaning for the perceiver. In particular...the meaning of an action—its intentional significance—derives from some consideration of the alternative action possibilities available to but foregone by the actor. As perceivers of action, we can only begin to understand the motives prompting an act if we view the effects of the act in the framework of effects that other actions could have achieved.

Correspondence. The cornerstone of this theory is the notion of correspondence. This refers to the degree to which an inference simultaneously describes an actor and his behavior. Thus, if an observer infers that another person's humorous behavior is a reflection

of his intent to be funny (which is itself indicative of a person's humorous disposition), this inference is correspondent. The idea of correspondence is, therefore, identical to Heider's concept of a unit relation between an act and a disposition.

For Jones and Davis, correspondence is dependent upon the judge's evaluation of intention. If an act is not conceived to be committed intentionally, its correspondent dispositional quality will not be attributed to the actor. In terms of our example, if the humorous act is not conceived to be committed intentionally it is unlikely that the actor will be judged to have a humorous disposition. Further, if the inference of intentionality is held with only moderate conviction, the inference of a dispositional quality cannot be held with any greater conviction. Thus, the theory of correspondent inferences focuses on Heider's concept of intentionality, as it is imbedded in the notion of trying.

At this point, a comment on the meaning of the term "disposition" is in order. Jones and Davis use this word in a vague manner. Dispositions are commonly referred to by social psychologists as traits or enduring tendencies to behave in a particular manner (CRM, 1974; Hollander, 1971). Heider (1958:30) defines dispositional properties as invariant impressions that are formed of other people. The subtle difference between the former and latter definitions is important because one might ask the following question: "If an individual has a humorous disposition, why would he have to try to be funny; that is, would he not be 'naturally' funny?"

Neither Heider nor Jones and Davis provide a direct answer to this query. Rather, a reading of these authors provides us with an

implicit answer that further clarifies their meaning of "disposition." Heider seems to suggest that a disposition is a quality of an individual; that is, as he uses it in his naive analysis of action, it describes the personality. This is at odds with the notion of a disposition as a behavioral tendency. Heider, then, wishes to separate the disposition of an individual from that person's behavior. Indeed, in an example that Heider (1958:33) cites, words such as "sentiments," "wishes," "abilities," and "emotions" are used to describe dispositions. Note that no reference is made to overt behavior.

Jones and Davis appear to take a similar view on the definition of "disposition." In so doing, they assume that people desire to act in accord with their dispositions (an assumption that can be derived logically from various consistency theories). As Jones and Davis (1965:221-222) argue:

> ...an actor cannot achieve his objectives solely by desiring to achieve them. He must have the capacities or skill to move from his present condition of desire to a subsequent condition of attainment and satisfaction. When a person's actions have certain consequences, it is important for the perceiver to determine whether the person was capable of producing these consequences in response to his intentions.... [The actor's] knowledge and ability are preconditions for the assignment of intentions. Each plays a similar role in enabling the perceiver to decide whether an effect or consequence of action was accidental. The assignment of intention, in turn, is a precondition for inferences concerning those underlying stable characteristics toward which the perceiver presses in attaching significance to action.

The particular manner in which Jones and Davis have used the term "disposition" is, therefore, important because it highlights the key role played by intentions in the attribution process.

According to these theorists, the invocation of a causal explanation for an action or behavior involves the specification of an intention which implies an underlying disposition or attribute of the actor. This relation between act and attribute is denoted an attribute-effect linkage.

> Given an attribute-effect linkage which is offered to explain why an act occurred, correspondence increases as the judged value of the attribute departs from the judge's conception of the average person's standing on the attribute (Jones and Davis, 1965:224).

Stated in propositional forms, this formal definition of correspondence implicitly includes notions derived from Festinger's social comparisons theory. In Jones and Davis' formulation, evaluation involves the comparison of the actor with others. In this sense, there is a departure from Festinger: while Festinger argues that people have a propensity for self-evaluation, Jones and Davis alter this initial assumption to suggest that there is a tendency for judges to evaluate an observed actor by comparing him with other actors. That is, they seem to assume a propensity for evaluating others by comparison.

The Inference Process. Having outlined the nature of Jones and Davis' notion of correspondence, we can now examine their explanation of how correspondent inferences are derived from the observation of acts. They begin from the point at which an act is observed and effects of various kinds occur.

> An act is conceived of as a molar response which reflects some degree of personal choice on the part of the actor (if only between action and inaction,

> though more typically between alternative courses of action) and which has one or more effects on the environment or the actor himself. Effects are distinctive (or potentially distinctive) consequences of action. Stated in the broadest terms, they are discriminable changes in the pre-existing state of affairs that are brought about by action (Jones and Davis, 1965:225).

For any act, there may be more than one effect. It is assumed that some effects are more desired or valued than others by the actor. Valued effects shed more light on the intentions of the actor. From the observer's perspective, if an actor's behavior leads to a desirable effect, that act will be regarded as the latter's most likely intention.

This hypothesis is significant. It suggests that the "frame of reference" that a judge brings to a situation will have potential impact upon the evaluative context in which an actor's behavior is considered. An example may clarify this idea. If a juvenile has been charged with vandalism for breaking windows, his delinquent friends may view his behavior as desirable inasmuch as he did something exciting that gained him some measure of reputation as a trouble-maker. If this is their conception of the situation, then the delinquents are likely to infer that the juvenile broke the windows for that purpose. That is, he intended to act in a way that brought him positive reaction from his friends. On the other hand, a social worker might view his behavior as undesirable because it leads to trouble with the authorities. This person may then conclude that the juvenile did not intend to break the windows; rather, the social worker may conclude that the boy's behavior was due to over-exuberance, a loss of temper, or a simple mistake.

Thus, differential judgments by observers of the desirability of another's behavior may result in different inferences regarding intentions. Jones and Davis do not specify what contributes to such differential assessments. One can, however, hypothesize possible determinants of these differential judgments: cognitive styles, different socialization experiences, ideologies—all may contribute to observer differences in assessing the desirability of an act. These possibilities will be pursued later in the dissertation.

Returning to the relationship between desirability and correspondence,

> ...it is...clear that attribute-effect linkages based on universally desired effects are <u>not</u> informative concerning the unique characteristics of the actor. To learn that a man makes the conventional choice is to learn only that he is like most other men. By the definition of correspondence..., an inference must characterize the actor's standing as high or low on an attribute relative to the average person, in order to qualify as correspondent. If a choice is explained on the basis of effects in the choice area which anyone would like to produce and enjoy, an attribute inferred to account for that choice will be low in correspondence. In general, we learn more about uniquely identifying intentions and dispositions when the effects of a chosen action are no more universally desired than the effects of a nonchosen action (Jones and Davis, 1965:227).

For any action, the possibility exists that more than one effect may occur. Jones and Davis argue that some of these outcomes are unintentional on the actor's part and that the attributor seeks to know which effect was intended. To do so, they propose that the judge implicitly assigns probabilities of intentionality to each observed effect. This probability will be a direct function of the desirability of the outcome and an inverse function of the number

of other effects that could have been intentional (referred to as noncommon effects).

In addition to this basic inferential process, Jones and Davis hypothesize that other factors may affect the observer's decision to begin the attribution process by focusing on a particular effect. Perceived similarity between the attributor and the actor may lead the former to impute his own motives to the latter. Also, prior information about the actor's past behavior may influence the attributions made. Specifically, Jones and Davis refer to research by Jones et al. (1961) which suggests that in-role behavior is less likely to lead to confident, correspondent inferences because it exhibits multiple effects, all of which are desirable.

Hedonic Relevance. The authors elaborate on the basic framework of the theory by discussing how personal involvement may influence the inference process.

> The theory of action implied in the discussion thus far obviously assumes that the actor is concerned with the consequences of his action. It is the very fact that his action choices have motivational significance for him that makes these choices informative for the perceiver. But a special and enormously important feature of many person perception settings is that the choice of an actor has significant rewarding or punishing implications for the perceiver (Jones and Davis, 1965:237).

Here, the concern is with the concept of hedonic relevance: does a particular action sequence exhibited by an actor gratify or disappoint the attributor? Any effect to which the observer reacts affectively will have hedonic relevance for him. Thus, there will be a wide range of noncommon effects that will be considered by the

judge. However, Jones and Davis argue that the number of noncommon effects are reduced due to "assimilation to the predominant hedonic value." That is, effects that are neutral to the attributor are viewed in the light of the pertinent effect which had hedonic relevance. This process of generalization, developed from a cognitive consistency perspective, magnifies the differences between an actor's chosen and nonchosen actions. An increase in hedonic relevance, then, is correlated with an increase in correspondence between an act and a disposition.

Jones and Davis go on to describe the joint influence of hedonic relevance and correspondence on the observer's evaluation. They predict that an individual will be more likely to attribute dispositional qualities to an actor as a joint function of increases in correspondence and hedonic relevance. They stress the interaction of these two variables:

> Since relevance increases correspondence, and since relevance and correspondence affect evaluation, it might seem reasonable to link relevance directly to evaluation. However, relevance may well affect only one condition of correspondence—the commonality of effects. For this reason it is possible to have high relevance and only moderate correspondence (Jones and Davis, 1965:239-240).

Several instances of empirical research support this hypothesis of interaction.

Personalism. Another aspect of personal involvement, the idea of personalism, is also discussed by Jones and Davis. Any hedonically relevant effect of the actor's behavior may be conceived by his evaluator as personal or impersonal. Personalism distinguishes

between effects that were the result of acts influenced by the presence of the judge and those that were not. If the attributor believes that the actor was aware that his actions would affect the observer, we are confronted with a case of personal hedonic relevance. Such personalism is likely to lead to a stronger inference that the actor was attempting some nature of good or bad action toward the observer. Thus, it is likely to have a strong impact upon any evaluations and further inferences about the actor. Various conditions such as provocation and ingratiation are also suggested by Jones and Davis as variables that may influence the degree of personalism imputed to any act.

Summary. Jones and Davis analyze the process of inferring another individual's intentions from his actions. They argue that the identification of intentions provides the attributor with information concerning the actor's dispositions. To the extent that behaviors (effects) are intended and may be described in terms similar to the actor's presumed dispositions, correspondent inference obtains. Their major hypotheses are that (1) correspondence increases as the number of unique (noncommon) effects increase and (2) correspondence increases as these effects deviate from the attributor's evaluation of desirability. In other words, the fewer the distinctive reasons a person has for acting in a particular manner and the more "unusual" these reasons, the greater the correspondence. That is, the particular action provides more information to the attributor concerning the actor's characteristics. This does not mean that the social desirability of an action is irrelevant. To the contrary, if behaviors

of an actor gratify or disappoint the attributor (have hedonic relevance for him), affectively neutral behaviors tend to be judged in the same way as these affectively loaded ones. Thus, a variation of the halo effect is postulated. Jones and Davis' theory of correspondent inferences therefore represents an attempt to describe the ways in which individuals are influenced in their assignments of dispositional causes for actions.

Kelley's Theory of External Attribution

Kelly (1967) attempts to describe the processes through which people make attributions about "environmental" causes of events or behaviors. In observing a behavioral effect, a person is frequently confronted with a decision: He must ascertain whether its cause is attributable to the individual or to external, environmental sources. Kelley's approach stresses the elimination of personal causes of events while Jones and Davis describe the process by which individuals account for them.

While Kelley emphasized the problem of assigning the causes of an event to the environment versus oneself, he does not limit his paradigm to this particular problem. He explicitly states that his perspective is capable of describing the processes that operate when one must select between environmental versus other people as the causal agents. This is important in so far as it makes possible a direct comparison and synthesis of his approach with Jones and Davis' model.

Kelley (1967:184-185) describes the attributional process thus:

> The inference as to where to locate the dispositional properties responsible for the effect is made

> by interpreting the raw data [one's conceptions]... in the context of subsidiary information from experiment-like variations of conditions. A naive version of J.S. Mill's method of difference provides the basic analytic tool. The effect is attributed to that condition which is present when the effect is present and which is absent when the effect is absent. This basic notion of covariation of cause and effect is used to examine variations in effects (responses, sensations) in relation to variations over (a) entities..., (b) persons..., (c) time..., and (d) modalities of interaction with the entity.... The attribution to the external thing rather than to the self requires that I respond <u>differentially</u> to the thing, that I respond <u>consistently</u>, over time and modality, and that I respond in <u>agreement</u> with a consensus of other persons' responses to it.... If these conditions are not met, there is indicated an attribution to the self...or to some juxtaposition of circumstances....

Thus, in Kelley's terms, valid knowledge about the causes of events will be a function of <u>distinctiveness</u> of response in concert with <u>consistency</u> and <u>consensus</u>.

The validity of this knowledge is subjectively determined. The problem at hand for any attributor is to ascertain whether his impression about an object is accurate or whether he is projecting his own characteristics onto the object. The notions of distinctiveness, consistency, and consensus determine the extent to which the observer attributes the cause of the effect to some external, environmental source.

In the case of self versus environment attributions, <u>distinctiveness</u> refers to whether the object's presence covaries with the existence of the observed effect. <u>Consistency over time</u> deals with whether the same reaction occurs on the part of the attributor every time. <u>Consistency over modalities</u> concerns similarities in the judge's reactions even though modes of interaction with the external object

may vary. Consensus is determined by reference to other people's reports of their experience; to the extent that there is agreement, consensus occurs.

For the cause of other versus environment attributions of causation, the definitions of these four concepts changes slightly. Distinctiveness indicates whether the actor's presence covaries with a given effect. Consistency over time and modalities refers to whether the actor's behavior is conceived to be unchanging across different situational contexts. Consensus relates to whether other people would behave in the same way. Thus, if we recall Jones and Davis' formulation, Kelley's last two determinants relate to the concepts of noncommon effects and desirability.

Information Level. Kelley views the criteria of distinctiveness, consistency, and consensus as determinants of an individual's information level. That is, they index the person's state of information in terms of differentiation and stability of his attributions. In other words, these criteria determine whether the attributor conceives his assignment of causation to be relatively certain and accurate for the particular situation under consideration.

The concept of information level suggests to Kelley that those people who are unable to make stable, distinct attributions may be informationally dependent on others:

> Anticipated information dependence affords the basis for seeking information....In this regard, it seems plausible to assume that persons have conceptions of the level of information they may expect to achieve for various types of problems, tasks, or phenomena (Kelley, 1967:199).

In this context, Kelley implies that individuals develop "threshold levels" in the sense that they may search for information if their ability to make distinct, stable attributions does not meet their prior expectations. Kelley (1967:200) suggests the conditions under which an attributor is likely to experience a low information level:

> Attribution instability (and, hence, susceptibility to influence) will be high for a person who has (a) little social support, (b) prior information that is poor or ambiguous, (c) problems difficult beyond his capabilities, (d) views that have been disconfirmed because of their inappropriateness, or non-veridicality and (e) other experiences engendering low self-confidence.

This passage is important to the general development of a theory of attribution. Kelley explicitly points to the possibility that certain social and psychological factors may influence an attributor's assignments of causation. Previous social experiences as well as psychological characteristics of the individual are hypothesized by Kelley to be instrumental in determining the distinctiveness and stability of attributions.

The impact of these factors are reaffirmed when Kelley discusses the conditions under which attributional errors may occur. Basing his considerations primarily on Heider's theory of interpersonal relations, he suggests four sources of misattribution: (a) relevant (informative) situational aspects may be ignored by the attributor, (b) egocentric assumptions may be made when evidence of attribution is incomplete, (c) attributions may be biased as a result of their potential affective consequences for the conceiver, and (d) the situational context may be misleading.

In subsequent additions to his theory of external attribution, Kelley (1972, 1973) attempts to elucidate the notions first entertained in his 1967 article. Specifically, in these later papers, Kelley focuses on the process of "schematic analysis" in attribution whereby a person makes cause-effect linkages. Kelley's concern with configurations of causes and effects is reflected in these articles and his discussion is centered on the covariance principle as it influences the development of causal schemata.

These considerations entail an enumeration of the ways in which attributors make observations and analyze information, on the one hand, and relate these to any a priori causal beliefs that they may hold as a result of their preconceptions. Again, Kelley stresses the idea that social factors and psychological predispositions may effect attributions of causation.

Summary. Kelley develops an explanation for the process by which people assign causes of events to external or environmental sources. Attribution to such external loci is a function of the extent to which the judge responds distinctively and consistently towards an observed effect and in accord with others' responses to the same effect. These three criteria determine an individual's information level which, in turn, determines how stable and distinct one's attributions will be.

A Critical Assessment of Attribution Theories

Both Kelley's theory of external attribution and Jones and Davis' theory of correspondent inferences attempt to describe how

people cognitively assign causation. As we have noted, they have approached this problem from different perspectives. Kelley develops a framework for describing how persons attribute causation to loci external to the actor, while Jones and Davis focus on the processes through which causes are attributed to the person under observation. These perspectives can be regarded to be complementary to one another.

While both theories are, for the most part, internally consistent and empirically verifiable, there remain some difficulties with each. One major problem that plagues Kelley's formulation is the notion of information level. By his own admission, Kelley is unable to define in operational terms what he means by this term. He simply assumes that other psychologists will develop such a measure. By failing to attack this inadequacy, Kelley weakens his theory in that many of his hypotheses regarding attributional stability cannot be tested for lack of a measurement technique.

Another questionable aspect of Kelley's formulation relates to its ability to explain attributions where only a minimal amount of information is available. Individuals often make causal assignments based on single occurrences of events. Such inferences cannot be explained adequately through invocation of the covariance principle. In such cases, we might infer that Kelley would tell us that there is a greater likelihood of attributional error; however, this does not improve the descriptive abilities of his paradigm. One possible solution to this omission is to develop hypotheses concerning the use of prior information, past experience, or psychological predispositions of the attributor as determinants of attributions. Such propositions

might enable Kelley to develop a theory of external attribution that holds for those situations in which the attributor has little information to manipulate.

Turning to Jones and Davis' formulation, we can also locate problems. One particular difficulty that we have mentioned is their imprecise use of the term, "disposition." As we noted earlier, their use of this concept demands that individuals act in accord with their dispositions if accurate attributions are to be made. This may assume too much of human beings. We referred to this same difficulty in criticizing Heider's formulation: There may not always be a one-to-one correlation between what one thinks and what one does. A consideration of this difficulty may be essential to improve the predictive accuracy of the theory of correspondent inferences.

A more important problem plagues this perspective. There seems to exist an implicit assumption that human beings are consistent in making attributions. That is, given two situations that are similar in most respects (actors involved, behaviors, etc.) Jones and Davis expect similar attributions to emerge on both occasions. This ignores various transitory psychological characteristics of the attributor that may vary from situation to situation.

These difficulties with the two theories of attribution suggest a major omission by both. Both theories focus on characteristics of the situation as the major determinants of attribution of causation. Given that these perspectives are concerned with the cognitive assignment of causation, it is somewhat surprising that neither paradigm has considered carefully the impact of the attributor's psychological

characteristics, both transitory and stable, upon his causal inferences.

The possibility that an attributor's cognitive style may influence his causal inferences has only been alluded to by Heider and Kelley. No specific hypotheses have been entertained by these attribution theorists. As we shall see in the next chapter, the empirical research that has been stimulated by these theorists has led most investigators to focus on situational elements. Only a few studies have concerned themselves with psychological states of the attributor. Thus, it appears that this might be a fruitful subject to pursue.

CHAPTER 2

ATTRIBUTING THE CAUSES OF SUCCESS AND FAILURE

Some psychologists have used attribution theory constructs developed by Jones and Davis, and Kelley to examine the assignment of a causal locus for various events observed by the attributor. These investigators have been primarily concerned with mapping the conditions under which attributors assign the causes of their own (or others') behaviors to internal or external sources.

Using Heider's (1958) schema, many attribution researchers have asserted that there exist four discernible elements which persons commonly conceive to be determinants of behavior: effort, ability, luck, and task difficulty. Some investigators have argued that individuals use these properties to decide where to locate the causal onus for an event. For example, Weiner et al. (1972:96) find that

> ...two of the four components...(ability and effort) describe qualities of the person undertaking the activity, while the two remaining components (task difficulty and luck) can be considered properties external to the person, or environmental factors.

It is therefore possible to speak of attributing the cause of any observed behavior or event to an external or internal locus.

Most empirical studies in this area have investigated the effects of one of three classes of independent variables upon the locus of attributed causation. One body of research has examined the impact of various situational contingencies upon attributions. These explorations have manipulated characteristics such as task complexity, situational constraints, and situational outcomes (for example: Beckman, 1970; Jellison et al., 1972; Johnson et al., 1968; Zadny and Gerard, 1974; Menapace and Doby, 1976) and then noted concomitant variations in the attributed locus of causation.

A second set of studies has assessed the impact of relatively transitory psychological states of the individual upon his attributions. These inquiries have manipulated the attitudes and opinions of attributors and then observed differential causal assignments to internal and external loci (Lerner, 1965, Landy and Aronson, 1969; Jones and Nisbett, 1971; Jones and Goethals, 1972).

The third class of research on the attribution of causation has considered the impact of stable individual differences in this process. Notably, a large body of literature in this area has utilized Rotter's (1966) construct of internal-external locus of control (or variations on it). Most of the empirical investigations that have employed this construct have reported that attributions are frequently made in a manner consistent with the individual's control orientation (Hochreich, 1972; Krovetz, 1974; Sosis, 1974).

A growing number of empirical studies have examined the impact of these three factors upon the assignment of causation for achievement. Previous research suggests that situational contingencies, transitory psychological states, and stable individual differences all affect the

attribution of causation for success and failure. While various psychologists have examined the influence of these factors, few researchers have attempted to assess simultaneously the main and interaction effects of all three conditions. At best, some students have considered the interaction of two of these independent factors.

A. A SELECTIVE REVIEW OF THE LITERATURE

In this section, we intend to examine the influence of various factors on the attribution of causation for success and failure. First, the relationship between situational outcome (success versus failure) and loci of attribution (internal versus external) will be surveyed. Additionally, other situational factors that affect this relationship will be noted. Second, the impact of transitory psychological characteristics of the attributor will be reviewed to see how such variables interact with the outcome-attribution correlation. Last, the literature that documents the influence of stable individual differences on the outcome-attribution relationship will be considered.

Situational Effects

Most of the research on the attribution of causation in achievement-related contexts is based on a premise derived from Heider (1958) and verified by Weiner et al. (1971):

> It has been suggested that success or failure at an achievement task primarily is attributed to four causal factors: ability, effort, task difficulty, and/or luck....That is, to "explain" the outcome of an achievement action, an individual assesses his own or the actor's level of ability, the amount of effort expended, the difficulty of the task, and the magnitude and direction of experienced luck.

> It is believed that values or weights are assigned to these causal sources, and success or failure at the task differentially assigned to the four factors (Frieze and Weiner, 1971:591).

The first two factors are considered to be internal characteristics or attributes of the actor; the latter two are external to him. Further, these factors may be classified as stable or unstable (Weiner et al., 1971). The ability of the actor and the difficulty of the task are viewed to be somewhat more enduring or permanent than are the actor's effort of his luck.

Success-Failure. A number of empirical investigations have examined how attributors assign causes for success and failure. By far, the majority have examined the process of self-attribution. A review of this literature indicates that there are two slightly divergent perspectives on this issue. One viewpoint, the logical analysis, is based upon Heider's (1958) naive analysis of action and the work of Weiner et al. (1971); the other, the defensive analysis, is derived from the research of Feather and Simon (1971), Fitch (1970), and Frieze and Weiner (1971).

The logical analysis assumes that attributors use available information to draw logical conclusions about the causes of their own successes and failures. Nicholls (1975:379-380) summarizes this perspective thus:

> This analysis compares different patterns of feedback in terms of the information they provide concerning the operation of a given causal factor....It is further assumed that all subjects apply and perceive themselves as applying moderately consistent and high effort on the task. This assumption appears reasonable in the case of a brief experimental task...which subjects see as moderately important....

> The logical analysis also applies to situations in which subjects have clear information relevant to task difficulty and to which task difficulty is moderate....In such situations, task difficulty provides a relatively unlikely explanation for either success or failure [because it remains constant]....Thus, in developing the logical analysis the major problem is to predict attributions to ability, effort, and luck.

The defensive analysis is based on the premise that self-attributions are motivated by self-enhancement and approval-seeking. Such defensiveness leads to the greater attribution of successes to internal factors (ability or effort) and failures to external loci (task difficulty or luck).

In the case of ability attributions, these two analyses make different predictions. The logical perspective argues that, given moderate effort, attributors are as likely to infer that high ability caused their successes as they are to conclude that low ability caused their failures. A defensive analysis predicts that people will be more likely to attribute success to ability. Failures will more often be attributed to external loci.

Both these analyses converge in their predictions about attributions to effort. If an individual tries and succeeds, he can conclude logically that his striving was the cause of his achievement. However, if he tries but fails, lack of effort cannot be the cause. This inference is not only logical; it also serves a defensive, self-enhancing purpose.

In assigning the causes of success and failure to luck, there should logically be no differences in its attribution for the achievement outcome. That is, success should be accorded the same

degree of good luck that failure does bad luck. From a defensive perspective, more attributions to luck should be made for failure than for success.

Thus, while there are slight differences in the attributional predictions of the logical versus the defensive analysis, both perspectives converge in their expectations that success is more likely to be assigned to internal factors than is failure. A reading of the empirical literature that tests this proposition reveals that this relationship has been confirmed in an overwhelming number of studies. Among those investigations that affirm this hypothesis, we note those of Fitch (1970), Kukla (1970), Frieze and Weiner (1971), Wolosin et al. (1973), Wortman et al. (1973), and Luginbuhl et al. (1975).

If one reviews the existing literature on the attribution of causation for other persons' successes and failures, one notes that there are fewer studies concerned with this phenomenon in comparison to the number that deal with self-attribution. Furthermore, the conclusions that may be drawn from these investigations are much more equivocal. Jones and Nisbett (1971) logically derive from Heider's work a hypothesis that actors are more likely to attribute the causes of their own behavior to situational sources while observers tend to view the behavior as the product of dispositional characteristics of the actor. Nisbet et al. (1973:154-155) cite two reasons for this:

> The actor's attention at the moment of action is focused on situational cues...with which his behavior is coordinated. It therefore appears to the actor that his behavior is a response to these cues, that is, caused by them. For the observer, however, it is not the situational cues that are salient but the behavior of the actor....The observer is therefore

> more likely to perceive the actor's behavior as a manifestation of the actor and to perceive the cause of behavior to be a trait or quality inherent in the actor. A second probable reason for the differential bias of actors and observers stems from a difference in the nature and extent of information they possess. In general, the actor knows more about his past behavior and his present experiences than does the observer. This difference in information level probably often serves to prevent the actor from interpreting his behavior in dispositional terms while allowing the observer to make such interpretations.

Evidence in support of this hypothesis includes the research of Jones and Harris (1967), Jones et al. (1968), McArthur (1972), and Nisbett et al. (1973).

At odds with these results are those of Frieze and Weiner (1971), Regan et al. (1974), and Feather and Simon (1975). These three studies all report tendencies for observers to attribute actor's successes to internal factors and their failures to external ones.

If one examines the methodology of these studies, a possible explanation of these divergent conclusions emerges. The three studies that fail to confirm the Jones and Nisbet hypothesis all deal with achievement related situations. Frieze and Weiner informed their subjects of an actor's performance outcome on a specific task as did Regan et al. Feather and Simon presented their subjects with more vague achievement situations. The attributors were provided with statements indicating whether actors succeeded or failed at various occupations. They report that failures were more likely to be attributed to task difficulty.

It seems, then, that when attributors are alerted to the fact that they are dealing with instrumental behavior, the pattern of

assigning causes for outcomes shifts. This may be due to the fact that attributors implicitly assume that the actors are expending effort in the achievement-oriented situation. If this is so, then it is logical for the observers to conclude that failure cannot be due to lack of effort and that success is largely due to hard work. At the same time, there may be insufficient information for the attributors to draw inferences about the actor's abilities; therefore, the assignment of causation is limited to a choice between effort as opposed to external causes. This explanation is consistent with predictions made through the use of the logical analysis of self-attribution described earlier.

Beyond these studies that suggest a success-internal, failure-external pattern of attribution, investigations of the assignment of causation in teacher-student relationships also provide indirect support for this correlation. Beckman (1970) conducted an experiment in which observers viewed teacher-student interactions. In cases where students improved, this advancement was attributed to the students' own abilities and efforts; where students' performances declined, the teacher was blamed. Similar results are noted by Ross et al. (1974).

After considering these various research findings, it seems possible to conclude that the achievement-related behaviors of actors influence the attributions of observers. More specifically, the literature on self-attribution and other-attribution of causation for success and failure suggests that there is a tendency for individuals to assign internal factors (ability and effort) as the sources of success and to attribute failures to external loci (luck and task difficulty).

The Nature of the Achievement Situation. Feather and Simon's (1975) study of how individuals attribute the causes of other people's successes and failures in certain occupations suggests interesting conclusions. It is noteworthy that this study differs from others in the type of situation presented to the attributors. Most investigations of attribution for achievement outcomes have involved scenarios in which actors succeed or fail at particular tasks. For example, Luginbuhl et al. (1975) had subjects attempt to recognize various visual patterns; these individuals were then told how well they had performed. In studies such as this, attributors are confronted with unequivocal results on very specific tasks. There is little ambiguity as to whether the actor succeeded or failed.

The stimulus situation that Simon and Feather present to their subjects varies from this standard. Participants in this study were each presented with a statement such as "After first term finals, John finds himself at the top of his Med. School class." Different forms of this statement were constructed in order to manipulate sex of the actor (John versus Jill), success-failure (top versus bottom), and occupational training (Med. School versus Nursing School versus Teacher's College). While it is clear whether the actors fail or succeed, what distinguishes this study from others is the "breadth" of the task under consideration. While other studies manipulate the outcomes of single tasks, Feather and Simon's experiment involves an achievement context in which there are many behaviors that could presumably contribute to an actor's success or failure.

This is significant inasmuch as the patterns of attributions of causation for success and failure in a "vague" situation replicate

the frequently reported pattern in situations involving single tasks: success is more likely to be attributed internally; failure is more likely to be attributed externally. Such results deserve note in so far as they suggest that the attribution paradigm may obtain outside the laboratory where persons often find themselves in positions where they assess the success or failure of another person and seek to explain the causes of such outcomes.

Transitory Characteristics of the Attributor

There is a body of literature in attribution theory that demonstrates that transitory psychological states of the judge have some impact upon his assignments of causation. These factors include the attributor's expectations in a particular situation and the extent to which he is attracted to the actor. In the following discussion, we shall attempt to demonstrate the ways in which these factors influence the attribution of causation for success and failure.

Expectations. All investigations of the relationships between causal attributions and expectancy of success (also referred to in the literature as initial confidence) deal with self-attribution processes. McMahan (1973:108) summarizes the theoretical argument regarding this variable:

> Expectancy of success has been regarded as being based upon "the assumed level of ability in relation to perceived task difficulty...as well as an estimation of intended effort and anticipated luck" [Weiner et al., 1971:2]. Since estimates of ability and task difficulty are considered to be relatively fixed, they tend to influence the attributions of causality made for an outcome. For example, a person

> with a high estimate of his ability to do a task (and whose expectancy of success is consequently high as well) is unlikely to attribute a failure to lack of ability, because such an attribution would entail altering a relatively stable perception. This line of reasoning implies that an outcome that disconfirms a subject's prior expectancy tends more to be attributed to variable factors (effort and luck) than to fixed factors (ability and task difficulty), while an outcome that confirms the subject's prior expectancy tends more to be attributed to fixed factors than to variable factors.

There is considerable support for this viewpoint. A reading of Frieze and Weiner (1971) indirectly reinforces this position. They argue that consistency with past performances produces attributions to ability and task difficulty while inconsistencies result in effort and luck assignments. Inasmuch as expectancies are no doubt a function of past performance, the theoretical argument regarding initial confidence may be seen to be consistent with Frieze and Weiner's position.

Partial empirical support for this perspective comes from Feather (1969) and Feather and Simon (1971). A more comprehensive confirmation is presented by McMahan (1973). Feather (1969) indicates that subjects whose expectancies were disconfirmed tended to attribute their outcomes to luck. Feather and Simon (1971) replicated this investigation and found that the causes of behavioral outcomes were assigned to lower ability and greater luck when subjects' initial confidences were not reinforced. They found that such disconfirmations of expectancies had no effect upon the attribution of effort or task difficulty.

While McMahan's (1973) study is not in complete accord with the research noted above, neither is it in complete opposition.

McMahan reports that the disconfirmation of expectancies produces a tendency to attribute the causes to effort and luck more than to ability. In so doing, he argues that this suggests that the contradiction of initial confidence may have greater impact on the attribution of causation to unstable factors (effort and luck) than to the assignment to external factors (luck and task difficulty). As he notes, his results represent a partial confirmation of this idea. They are equally supportive of the notions suggested by other investigators that have been mentioned.

A conservative interpretation of these experiments suggests that there is sufficient evidence to justify the prediction that attributors are more likely to assign the causes of behavioral outcomes to luck when their expectancies are not substantiated. As well, they are less likely to attribute such results to ability factors. However, it appears that more research is required to substantiate McMahan's assertion that attribution to task difficulty will also obtain under such circumstances.

Affective Reactions Toward Actors. Heider (1958) has suggested that we expect good people to do good things and bad people to perform bad actions. When we are confronted with such consistent conceptions, it becomes easy to establish causal unit relations and infer that characteristics of the actor led to the behavior. According to Regan et al. (1974:386),

> we provide an internal attribution...for such expected actions, as we regard them as typical of the actor, and we expect more of them in the future. However, when the action is seen to be out-of-character—when good actors do bad acts, or bad

> actors do good acts—we are unable to understand the action as internally caused, and instead provide an external attribution. We see the action as atypical of the actor, as caused by some external or situational factor, and do not expect similar actions in the future.

There are many theoretical sources of this hypothesis. We have noted that Hieder has addressed this issue. This proposition can be seen as an instance of the integration of his cognitive balance perspective and his naive analysis of action. Human beings desire to maintain their conceptions in some state of balance or consistency: liking someone and judging them to have succeeded represents balance while disliking a person and conceiving them to be successful suggests imbalance. In the latter case, the attribution of the causes of their success to external loci (luck or ease of task) provides a method for "making sense" of the imbalance. Similar arguments may be derived from Festinger's theory of cognitive dissonance where an external attribution could represent the means for accommodating dissonance.

Kelley's theory of external attribution also provides a framework for deriving this prediction. He argues that external attributions are more likely to be made if an actor behaves inconsistently over time and modalities. When a person who has been evaluated positively fails, his actions may be considered to be inconsistent; therefore, from the theory of external attribution, we would predict that his failure will be explained by reference to external causes.

There are few direct tests of this hypothesis. The most notable studies of the interaction of achievement outcome and affective evaluations of the actor are those conducted by Schiffman and Wynne (1963)

and Regan et al. (1974). Regan et al. report that people attributed the causes of liked actors' successes to characteristics of these persons and made external assignments for such persons' failures. A reversed pattern was apparent for disliked individuals: successes were attributed externally and failures internally.

Other studies provide indirect support of this proposition. We have previously cited studies that describe the correlation between expectations for achievement and self-attribution. It is possible that individuals also have expectations of others' outcomes in achievement situations. In part, this may occur because we expect others to behave in accordance with our affective evaluation of them. Thus, we expect good people to achieve and bad people to fail. In this sense, we may be prone to committing a variation of the genetic fallacy. If one re-examines the quotation taken from Regan et al. (1974:386) (see page 58), one notes that considerable emphasis is placed upon the attributor's expectations of the actor's behaviors. Therefore, if our expectancies do affect our assignments of causation for others' behaviors in the same ways as in self-attribution, the investigations conducted by Feather (1969), Feather and Simon (1971), and McMahan (1973) suggest that successes of disliked others and the failures of liked others will be more likely attributed to external loci (especially to luck) because they disconfirm the attributor's expectancies.

It seems that any investigation of the attribution of causation for success and failure might be improved by taking into account the attributor's affective evaluation or reaction to the actor. Such transitory psychological states of the individual appear to have

considerable impact on the assignment of causal loci through their interaction with judgments of the actor's success or failure.

Stable Individual Differences

We have noted that a substantial proportion of the empirical literature that deals with the assignment of causation for achievement outcomes has been concerned with self-attribution. This is also the case with research that considers the impact of stable characteristics of the attributor upon selection of causal loci. Most of the studies in this area have focused on either achievement motivation (Weiner et al., 1971) or locus of control as relatively fixed dispositions of the attributor.

There is little evidence to suggest that the former exerts any influence upon the individual when he makes attributions to explain other people's behavior; however, there is direct and indirect proof that locus of control may operate in this type of context.

Additionally, we shall argue that another characteristic of the attributor, psychological differentiation, may also influence the assignment of causation for others' actions. While there is as yet little empirical evidence to justify this prediction, we intend to demonstrate that it is a possible interacting factor.

Locus of Control. Rotter (1966:1) defines the construct of internal-external locus of control as follows:

> When a reinforcement is perceived by the subject as following some action of his own but not being entirely contingent upon his action, then, in our

> culture, it is typically perceived as the result of luck, chance, fate, as under the control of powerful others, or as unpredictable because of the great complexity of the forces surrounding him. When the event is interpreted in this way by the individual, we have labelled this a belief in external control. If the person perceived that the event is contingent upon his own behavior or his own relatively permanent characteristics, we have termed this a belief in internal control.

A hypothesis that has been tested is that internally controlled persons attribute the causes of their own (and others') successes and failures to internal loci while externals assign causal onus to external sources. However, early research by Dies (1968), Fitch (1969), and Lackey (1968) (as reported in Gilmor and Minton, 1974) failed to validate this proposition.

More recent research has resulted in conclusions that are somewhat contradictory. Davis and Davis (1972) conducted an experiment in which male subjects performed tasks involving the solution of anagrams where their scores were fixed in advance. These psychologists report that successful individuals were more likely to attribute their outcomes to internal factors than were subjects who failed. Additionally, internally controlled participants demonstrated a greater propensity to make internal attributions for their outcomes than did their externally controlled counterparts. Besides these main effects, significant locus of control-achievement outcome interactions occurred. When failure occurred, internally controlled subjects evinced a greater tendency to blame themselves than did externals; however, no differences in attributions were noted among those who succeeded. Lefcourt et al. (1975) record similar results with respect to main effects of success-failure and locus of control.

Additionally, they report a pattern of interaction similar to that noted by Davis and Davis.

Other studies have examined segments of the success-failure, locus of control joint distribution. For example, Phares et al. (1971) administered a test of mental ability to subjects but gave them bogus information that they had all failed. They found a positive correlation between subjects' locus of control and the locus of their causal attributions. Hochreich (1974) devised an investigation in which male participants were asked to assign causation for other actors' achievements or lack of them. When actors failed, externally controlled respondents were more likely to attribute the outcome to external sources than were internal subjects while no differences were apparent under success conditions. This interaction was more distinctive for achievement situations (competing for a job, obtaining academic success) than it was for non-achievement scenarios (getting a date, encountering the police). In attempting to replicate this study for females, Hochreich was unable to duplicate her original results. This suggests that sex differences may have significant impact upon achievement-locus of control interactions.

Hochreich's study is important in another way. It indicates that the locus of control-situational outcome interaction may operate in cases where judges assign causes to other people's behavior. Another investigation confirms this notion. Sosis (1974) asked male and female subjects to assign causes for a hypothetical character's accident. She reports that internals were more likely than externals to attach personal causes to the actor's accident.

In opposition to these investigations, Gilmor and Minton (1974) note a different pattern of interaction. They devised a study in which subjects completed an anagrams test as a manipulation of success-failure. Gilmor and Minton's results are in accord with those of Davis and Davis, Hochreich, and Lefcourt et al. in finding a main effect of success-failure upon the locus of attribution. However, in opposition to these other investigators, Gilmor and Minton do not report a significant main effect due to locus of control. Additionally, the interaction pattern that they observe is different from those previously reported: internally controlled subjects were more likely to attribute their successes to personal causes than were externally controlled individuals; however, there were no attributional differences among those who failed.

Gilmor and Minton argue that these differences are the result of an experimental artifact that affected Davis and Davis' research. In that study, subjects were told that their performances represented specific levels of ability. This emphasized the relationship between performance outcome and ability and, therefore, may have influenced the subjects to respond in a more internally-oriented manner. A similar cue was given to the participants in the study conducted by Phares et al.; however, no such "bias" occurred in the research design of Lefcourt et al. Nevertheless, it seems advisable that future research in this area should avoid the intrusion of such artifacts. Beyond this, it is not clear as to what may have contributed to these divergent findings.

One speculation concerning these contrasting results may be entertained. It is noteworthy that all studies reported here have used

the entire internal-external locus of control scale as if it were a uni-dimensional measure. There are several psychologists who have suggested that this may not be so. Gurin et al. (1969) were able to identify two distinguishable dimensions via factor analytic methods. The first factor, "control ideology," indicates whether individuals believe in the role of internal and external forces in affecting success or failure in the culture at large. "Personal control," the second factor refers to whether individuals see themselves controlled by such forces. Mirels (1970) found two different factors: one reflected individuals' conceptions of the extent to which they were masters of their world; the other denoted whether subjects thought they had any imapct upon political institutions. In his review of the many studies that have discovered various dimensions of locus of control, Lefcourt (1976) has argued that these investigations suggest that researchers might profitably use different dimensions according to the theoretical requirements of their research. Rotter (1975:63) concurs:

> [Factor analyses of the locus of control scale] may be useful if it can be demonstrated that reliable and logical predictions can be made from the subscales to specific behaviors and that a particular subscale score produces a significantly higher relationship than that of the score of the total test.

Given these findings and the position advocated by Rotter and Lefcourt, it is possible that the contrasting results reported by Gilmor and Minton, and Davis and Davis may have been produced by differential patterns of response by subjects to the total scale. That is, factor analyses might show that the respondents in one study answered the scale questions in a manner that highlighted one dimension

while subjects' responses in the other investigation may have stressed a different dimension. If this were the case, then variations in patterns of attribution might be expected. This suggests that research into the interaction of locus of control and situational outcome might profit from considering subscales of Rotter's instrument.

Psychological Differentiation. It is possible to think of Rotter's locus of control construct as representative of a cognitive predisposition to view the world in a particular manner. As such, this concept may describe, in part, how people organize their experiences so that human action "makes sense." This view of human behavior as being internally or externally controlled may be determined by how we perceive and conceive of stimuli that impinge upon us. Thus, it is easy to imagine that certain cognitive styles may affect our views of the actions of others.

One orientation to cognitive style has been researched by Witkin et al. (1954, 1972). They develop the notion of psychologically differentiated cognitive styles in terms of a field-independent/field-dependent continuum. Witkin et al. (1972:35) assert that

> ...the person with a more field-independent way of perceiving tends to experience his surroundings analytically, with objects experienced as discrete from their backgrounds. The person with a more field-dependent way of perceiving tends to experience his surroundings in a relatively global fashion, passively conforming to the influence of the prevailing field or context.

These psychologists argue that field-independence correlates with an analytic style of intellectual functioning and the ability to structure and articulate experience. They proceed to say that

> ...psychological systems, like biological systems, are open, in the sense that they are in continuous commerce with the environment....With respect to relation with the surrounding field, a high level of differentiation implies clear separation of what is identified as belonging to the self and what is external to the self. The self is experienced as having definite limits or boundaries. Segregation of the self helps make possible greater determination of functioning from within, as opposed to a more or less enforced reliance on external nurturance and support for maintenance, typical of the relatively undifferentiated state (Witkin et al., 1972:10).

This description of psychological differentiation has stimulated Lefcourt (1972) to assert that one should expect some relationship between Rotter's locus of control construct and field independence-dependence. However, empirical tests of this hypothesized association have reported zero-order correlations that were in the anticipated direction but non-significant (Willoughby, 1967; McIntire and Dryer, 1973; O'Leary et al., 1974). In pursuing the notion that field independence-dependence and locus of control are similar in some respects, Lefcourt (1972, 1976) cites unpublished research by Bax (1966), Deever (1968), and Dies (1968) that indicates that measures of locus of control and psychological differentiation predict to criterion variables in a similar manner while being unrelated to each other.

Lefcourt and Telegdi (1971) used indicators of field independence-dependence and internality-externality to predict differences in cognitive activity. They define this latter variable as the extent to which an individual is able to "...discern the opportunities available or meanings in a given situation" (Lefcourt and Telegdi, 1971:54). Thus, cognitive activity refers to the tendency to search for various possible interpretations of a situation. Lefcourt and Telegdi report significant interaction effects such that field

independent-internally controlled subjects scored highest on cognitive activity tasks such as the Remote Associates Test, a word production measure of creativity. Surprisingly, incongruent subjects (field independent-externals or field dependent-internals) scored lowest on tests of cognitive performance. Independent of each other, main effects of psychological differentiation and locus of control were not significantly related to the dependent variable. Other experiments investigating the impact of these two constructs on cognitive activity have noted similar interactions (Crego, 1970; Lefcourt et al., 1973, 1974).

Lefcourt's (1972:14) conclusion is that

> ...overall, the research regarding cognitive activity and I-E lends some support to the contention that persons with internal control expectancies tend to be more cognitively active than those with external control expectancies....Nevertheless, I-E itself explains only a limited percentage of the variance in cognitive tasks....The latter studies [referred to above] indicate that the power of the prediction of cognitive activity is often greatly increased when I-E and differentiation are used in concert.

The reported interactions between psychological differentiation and locus of control lend credence to our contention that there is overlap between these two constructs. These two concepts may be thought of as dimensions of a general "constellation" of variables that constitute cognitive style. Lefcourt and Telegdi (1971) suggest that this may be the case in their discussion of congruent (field independent-internals or field dependent-externals) and incongruent cognitive styles:

> Perhaps congruent subjects are those who have come to better terms with themselves, having developed self-estimations and judgments that are more easily manageable in view of the kinds of perceptual skills

> at their disposal. Since such skills as those involved in being field independent are stable and enduring characteristics, the perceived locus of control may act as a measure of the degree to which one comes to terms with his own abilities, and it is perhaps this "coming to terms" with oneself as a field-dependent or field-independent person which may produce the fluidity in thought processes noted for congruent subjects in this study (Lefcourt and Telegdi, 1971:56).

In a similar sense, congruency of cognitive style may represent cases in which perceptions influence or condition conceptions of the world.

If this is so, we would expect variations in combinations of psychological differentiation and locus of control to have differential impact upon the attribution of causation for success and failure. In light of our previous suggestion that particular subscales of the locus of control construct may better predict such causal assignments, it seems important that an investigation of the intercorrelations of psychological differentiation and these partial scales be conducted in order to assess better the nature of the connection between these two concepts. To our knowledge, no such inquiry has yet been conducted.

B. ISSUES AND HYPOTHESES

The review of the literature of this point suggests that there are many issues in attribution theory research that remain unresolved. Four concerns will be attended to in the research that will be reported in subsequent chapters. Two of these issues are of critical importance to the development of the attribution theory perspective; the other two are of lesser significance but are nonetheless of considerable interest

to social psychologists. Various hypotheses will be generated in an attempt to answer these questions by means of empirical investigation.

The Issues

(1) Do Attribution Theory Predictions Obtain Outside the Laboratory?

Most of the research that we have cited has involved the experimental manipulation of variables in a laboratory setting. In most of these investigations, the situational outcome is varied so that judges observe conditions in which actors have obviously succeeded or failed at a very specific task such as solving a puzzle or answering a series of test questions. Few attribution theorists have attempted to study the assignment of causation for success and failure in less structured, more complex, everyday situations. No doubt, these types of settings may often be more ambiguous than laboratory scenarios. If the hypotheses that have been confirmed in laboratory studies also withstand testing in more "natural" settings, this will speak well for the utility of attribution theory.

In subsequent chapters, a research design will be developed that enables us to approach conditions similar to everyday settings and to test the accuracy of attribution hypotheses in such situations.

(2) Are Causal Assignments for Success and Failure Influenced More by Variable Aspects of the Attributional Setting or by Cognitive Traits of the Attributor?

Among some of the contingencies that vary across attributional settings, we have noted (a) judgments of success and failure, and

(b) the attributor's appreciation for the actor. On the other hand, psychological differentiation and locus of control may be conceived as stable predispositions that attributors bring to the setting. Few studies in attribution have attempted to assess which of these factors accounts for a greater proportion of the variation in the assignment of causation. Indeed, as we have noted, little research whatsoever has considered the impact of psychological differentiation.

In the study to be reported, an assessment of the relative impact of these variables will be attempted. In so doing, we shall also explore the nature of particular interactions of these factors that will be hypothesized to correlate with the attribution of causation.

(3) What is the Nature of the Relationship Between Locus of Control and Psychological Differentiation?

We have suggested that there may be a link between Rotter's concept of internality-externality and Witkin's notion of field independence-dependence. While previous research indicates that there is no significant linear relationship between the two, it may be that an identifiable curvilinear association does. Furthermore, it may be that subscales of the locus of control construct correlate with a measure of psychological differentiation. These possibilities require empirical consideration.

(4) What is the Nature of the Relationship Between a Judge's Appreciation of an Actor and His Judgments of that Person's Success or Failure?

It is interesting that few psychologists have considered the possibility that attraction or affect may be highly correlated with the assessment of success. This neglect may be due to the basic experimental paradigm in attribution research that often maintains orthogonality with respect to these two factors. Furthermore, as we have noted previously, the judgment of another person's success or failure in laboratory experiments often requires little reflection on the part of attributors. The task is simple and its outcome obvious. However, as we move to more complex situations such as we encounter in everyday life, the attribution of success and failure may become more difficult. In part, this may be a function of the multi-dimensionality of the concept of success. This has been suggested by Nettler (1976) and Thorndike (1963). There are many criteria upon which one might judge the success or failure of another person in everyday life.

If this is true, then attributors may judge the success or failure of others in accord with their approval or disapproval of these actors. This has been alluded to in the literature reviewed previously. In a complex setting, where it is difficult to decide whether an individual has succeeded or failed, our attraction to or liking of that person may cue or bias our judgments. The basic tenents of Heider's naive analysis lead us to predict that judging liked actors as successful and disliked ones as failures is a low

dissonance behavior and, thus, likely to occur. This prediction will be tested in the research to be presented in the next chapters.

The Hypotheses

We are concerned with four independent variables: judgments of an actor's success or failure (S), judges' like or dislike of the actor (L), judges' locus of control (C), and their field independence-dependence (F). These four factors will be assessed for their effect upon the dependent variable: judges' attributions of causation (A). Given these variables, four possible main effects and eleven possible interaction effects upon the dependent variable may be hypothesized. However, testable propositions will be made for only a portion of these; for some effects, there is no theoretical reason or empirical evidence that such relationships should obtain.

Hypothesized Main Effects. For each hypothesis, the predicted relationship will be stated, theoretical rationale and empirical evidence suggesting the tenability of the proposition will be cited, and a dummy table indicating the expected distribution will be displayed.

(1) There will be a main effect due to success-failure (S). Judges will attribute the causes of an actor's success to internal loci; the sources of his failure will be assigned externally.

This prediction is derived from Heider's naive analysis of action concerning the attribution of causation for success and failure (page 50) and from the work of Weiner et al. (1971). Previous research (Fitch, 1970; Kukla, 1970; Frieze and Weiner, 1971; Wolosin et al., 1973;

Wortman et al., 1973; Luginbuhl et al., 1975) provides further substantiation of this proposition.

(2) There will be a main effect due to locus of control (C). Judges exhibiting an internal locus of control will be more likely to make internal attributions for an actor's behavior; externals will be more likely to assign causation externally.

This hypothesis originates from Rotter's (1966) discussion of locus of control and its effects upon the individual's conceptions of the world. Rotter asserts that internally controlled people tend to view reinforcements as being contingent upon their own relatively permanent characteristics or their behaviors. Externally controlled individuals are predisposed to explain the world in terms of luck, chance, or other uncontrollable forces. Hochreich (1974) and Sosis (1974) present evidence that individuals may project their own control orientations when they attribute causation for the actions of others. Phares et al. (1971) and Davis and Davis (1972) also cite empirical evidence that indirectly supports this proposition.

Hypothesized Intercorrelations Among Independent Variables.

(3) There will be a positive correlation between locus of control (C) and psychological differentiation (F). As we have noted earlier (page 66), Lefcourt (1972) has argued that there is some theoretical basis for predicting that these two constructs will be associated. Additionally, Witkin (1972) suggests that field dependent persons tend to be more reliant on external nurturance. This shares some common meaning with Rotter's definition of external locus of control. While previous research indicates that this relationship is unlikely

TABLE 1: DUMMY TABLE FOR HYPOTHESIS 1

		(S) Success-Failure	
		Success	Failure
(A) Attribution	Internal	70%	30%
	External	30%	70%

TABLE 2: DUMMY TABLE FOR HYPOTHESIS 2

		(C) Locus of Control	
		Internal	External
(A) Attribution	Internal	70%	30%
	External	30%	70%

TABLE 3: DUMMY TABLE FOR HYPOTHESIS 3

		(F) Field Independence-Dependence	
		Independence	Dependence
(C) Locus of Control	Internal	60%	40%
	External	40%	60%

to be found, we hypothesize it because we intend to investigate the possibility that subscales of the internality-externality measure may be correlated with psychological differentiation.

(4) There will be a positive correlation between judges' appreciation of an actor (L) and their assessments of him as successful (S). Heider's theory of interpersonal relations represents the conceptual justification of this hypothesis. His development of the notion of balance (page 13) provides the basic principal underwriting this prediction.

Hypothesized Interaction Effects.

(5) There will be a success-failure (S) by liking-disliking (L) interaction effect. Judges will make internal attributions of causation to explain the success of a liked actor and external assignments for his failure. For a disliked actor, they will make external attributions for his success and internal assignments for his failure.

We have noted that the theoretical source of this prediction stems from an integration of Heider's naive analysis of action and his cognitive balance perspective (page 59). We have argued that Heider's ideas suggest that external attributions of causation provide a means for accommodating cognitive imbalance. If an individual judges a liked actor to have failed or a disliked actor to have succeeded, cognitive inconsistency may result. Such an imbalance may then stimulate external causal attributions.

Additionally, Kelley's (1967) theory of external attribution provides some justification for making this prediction. Kelley asserts that judges are more likely to make external causal attributions if they

TABLE 4: DUMMY TABLE FOR HYPOTHESIS 4

		(S) Success-Failure	
		Success	Failure
(L) Like-Dislike	Like	80%	20%
	Dislike	20%	80%

TABLE 5: DUMMY TABLE FOR HYPOTHESIS 5

		(S) X (L)			
		Success		Failure	
		Like	Dislike	Like	Dislike
(A) Attribution	Internal	80%	20%	20%	80%
	External	20%	80%	80%	20%

conceive an actor to behave inconsistently. Thus, if a judge appreciates an actor who fails, this may result in an external assignment of causation.

Research conducted by Schiffman and Wynne (1963), Feather (1969), Feather and Simon (1971), McMahan (1973), and Regan et al. (1974) supports this proposition.

(6) There will be an interaction due to success-failure (S) and locus of control (C). Internally oriented attributors will be more likely than externally oriented subjects to assign the causes of an actor's failure to internal loci. When an actor succeeds, no differences in attribution due to locus of control will occur.

Heider (1958:94) argues that

> ...the feeling of one's power or lack of ability on a particular task may be connected with a pervasive mood of competence in which one feels that one can do anything, or with a despondent mood in which one despairs of one's powers and abilities.

These feelings affect the way in which an individual assigns causation. There are similarities between this notion and Rotter's concept of locus of control. Internally oriented people focus on their powers and abilities to act; externally oriented individuals do not. Given the research (Hochreich, 1974; Sosis, 1974) indicating that judges tend to project their control orientation to other actors, these ideas may be applicable to the attribution of causation for others' actions. It may be that internally oriented individuals are more likely to explain successes and failures by reference to internal attributions because this orientation is a pervasive feeling such as Heider has described. On the other hand, externally controlled individuals are more likely to assign the causes of failure to external

loci because such outcomes are consistent with their control orientation. In the case of success, however, Heider asserts that individuals are predisposed to attribute internally. This tendency may cause externals to abandon their predisposed notions of control and assign causation in a manner similar to internally oriented persons. In this way, the hypothesized pattern of interaction would emerge. Support for this hypothesis is also derived from previously cited research on defensive externality.

As we have noted, with the exception of Gilmor and Minton's (1974) study, all other investigations (Phares et al., 1971; Davis and Davis, 1972; Hochreich, 1974; Sosis, 1974; Lefcourt et al., 1975) have presented data that attest to the verity of this proposition.

(7) Psychological differentiation (F) and locus of control (C) will have an interaction effect upon attributions of causation. Field dependent judges who are internally controlled will be more likely than field independent-internals to attribute causation internally. Field dependent-externals will exhibit a greater tendency to attribute internally than will field independent-externals. Regardless of degree of psychological differentiation, internally oriented attributors will be more likely to assign causation to internal loci than will externally oriented persons.

Studies conducted by Crego (1970), Lefcourt and Teleggi (1971), and Lefcourt et al. (1973, 1974) report that these two independent variables exert an interaction effect upon cognitive activity as measured by the Remote Associates Test. There is evidence to suggest that individuals who score well on the Remote Associates Test are more creative (Baron, 1958; Mednick, 1963; Mednick et al., 1964) and,

TABLE 6: DUMMY TABLE FOR HYPOTHESIS 6

		(S) X (C)			
		Success		Failure	
		Internal	External	Internal	External
(A) Attribution	Internal	60%	60%	60%	20%
	External	40%	40%	40%	80%

TABLE 7: DUMMY TABLE FOR HYPOTHESIS 7

		(F) X (C)			
		Field Independent		Field Dependent	
		Internal	External	Internal	External
(A) Attribution	Internal	50%	20%	80%	40%
	External	50%	80%	20%	60%

therefore, are more often curious (Maddi, 1963; Maddi and Berne, 1964; Maddi et al., 1964, 1965). If this is the case, then we would expect individuals who are cognitively active to search for information in order to satisfy their curiosity.

This provides us with some clues as to the hypothetical nature of the interaction pattern proposed here. Given that field independent-externals have been found to be the most cognitively active, we would expect that they would be most likely to search for information in order to attribute causation. If this is so, then they may be as likely to find evidence suggesting internal assignments as they would to find information suggesting external attributions. Field independent-externals, however, are among the least cognitively active subjects. It is reasonable to expect that they will be unlikely to engage in information search; rather, they will be more likely to attribute in accordance with their predisposed locus of control: to external sources. For similar reasons, field dependent-internals are more likely to attribute internally. On the other hand, field dependent-externals are only slightly less cognitively active than are field independent-internals. We would expect them to be marginally predisposed to attribute causation to external sources.

(8) There will be a three-way interaction effect among success-failure (S), liking-disliking (L), and locus of control (C). Where cognitive balance is experienced by judges, extreme internal or external attributions will occur. This will depend upon the nature of the balance conceived. Thus, if a liked actor succeeds or a disliked actor fails, internally controlled subjects will assign causation internally. However, if externally oriented subjects conceive a liked actor to have

TABLE 8: DUMMY TABLES FOR HYPOTHESIS 8

(C) Locus of Control	(L) Like-Dislike	(S) Success	(A) Attribution	
			Internal	External
Internal	Like	Success	90%	10%
Internal	Like	Failure	50%	50%
Internal	Dislike	Success	50%	50%
Internal	Dislike	Failure	90%	10%
External	Like	Success	80%	20%
External	Like	Failure	10%	90%
External	Dislike	Success	10%	90%
External	Dislike	Failure	50%	50%

failed or a disliked actor to have succeeded, causation will be attributed externally. Internally controlled individuals who judge a liked actor to have failed or a disliked actor to have succeeded find themselves in a dilemma. We predict that these individuals will be as likely to make an equal number of internal and external causal attributions. In the case of externally oriented judges, the actions liked actors who succeed will be explained by internal attributions; reasons stated earlier in Hypothesis 6. However, when they observe the actions of disliked actors who fail, they will make an equal number of internal and external attributions.

The justifications for this prediction stem from a synthesis of the rationale presented for the fifth and sixth hypotheses. No previous research has tested this interaction.

(9) There will be an interaction effect due to specific combinations of success-failure (S), liking-disliking (L), and psychological differentiation (F). We predict that field independent subjects will be less likely than field dependent attributors to make internal attributions of causation to explain a liked actor's success or a disliked actor's failure. Furthermore, field independent persons will be less likely than field dependent subjects to make internal attributions for the failures of liked subjects and the successes of disliked others.

This proposition is derived from Witkin et al. (1972) who argue that field independent people are less likely to be influenced by characteristics of the actor when making judgments about his behavior. If this is true, then field independent subjects should be influenced less by their affective reactions toward a person who succeeds

or fails. In other words, the previously hypothesized interaction of success-failure and liking-disliking should be attenuated for judges who exhibit a high degree of psychological differentiation. For field dependent people, the two-way interaction should become accentuated because they will be influenced by their appreciation of the actor.

(10) There will be a success-failure (S) by locus of control (C) by psychological differentiation (F) interaction effect. Field independent subjects who are also internally oriented will be as likely to attribute internally as externally. This will hold for explanations of an actor's success or failure. Field dependent-externals will behave in a similar manner. However, field independent-externals will be more likely to make internal causal assignments for an actor's success than for his failure. The same prediction is made for field dependent-internals.

This hypothesis may be derived from a synthesis of the sixth and seventh propositions. Given that field independent-internals and field dependent-externals are the most cognitively active subjects, they are more likely to develop reasons that reflect both internal and external attributions. In this sense, they are less likely to be influenced by their predisposed views concerning locus of control. On the other hand, field independent-externals and field dependent-internals will attribute causation in a manner consistent with their control orientations.

(11) There will be a four-way interaction involving all of the dependent variables: (S), (L), (C), and (F). The direction of the specific interaction patterns cannot be predicted inasmuch as there is no strong theoretical reason for proposing this hypothesis. Our purpose here is to test this proposition in order to be certain that

TABLE 9: DUMMY TABLES FOR HYPOTHESIS 9

(F)	(L)	(S)	(A)	
Field Indep-Dep	Like-Dislike	Success	Attribution	
			Internal	External
Independent	Like	Success	60%	40%
Independent	Like	Failure	40%	60%
Independent	Dislike	Success	40%	60%
Independent	Dislike	Failure	60%	40%
Dependent	Like	Success	80%	20%
Dependent	Like	Failure	20%	80%
Dependent	Dislike	Success	20%	80%
Dependent	Dislike	Failure	80%	20%

TABLE 10: DUMMY TABLES FOR HYPOTHESIS 10

(F)	(C)	(S)	(A)	
Field Indep-Dep	Locus of Control	Success	Attribution	
			Internal	External
Independent	Internal	Success	50%	50%
Independent	Internal	Failure	50%	50%
Independent	External	Success	70%	30%
Independent	External	Failure	10%	90%
Dependent	Internal	Success	90%	10%
Dependent	Internal	Failure	10%	90%
Dependent	External	Success	50%	50%
Dependent	External	Failure	40%	60%

lower-order interactions are not unduly affected by this joint effect. Cohen and Cohen (1975) note that the higher the order of the joint effect, the less likely is it to be statistically significant. However, a test of an interaction comprised of all independent variables does provide us with a prediction equation that includes all possible lower-order effects. This hypothesis will therefore be evaluated in order to examine the influence of interactions of the same order upon each other.

The testing of these hypotheses will constitute subsequent chapters of this dissertation. The results obtained are expected to assist us in responding to the issues that have been delineated. The applicability of attribution theory outside of laboratory conditions will be considered on the basis of results pertaining to the first, second, fifth, and sixth hypotheses. The relative influence of variable aspects of the attributional setting and stable individual differences upon the assignment of causation will be examined by testing the latter seven propositions. Answers to questions concerning the interrelationships among independent variables may be derived from the results pertaining to the third and fourth hypotheses. The next chapter describes a research methodology that provides empirical answers to these questions.

CHAPTER 3

METHODOLOGY

The discussion to this point represents an attempt to integrate previously developed theoretical and empirical arguments regarding the nature of attribution of causation and some of its correlates. To assess the accuracy of our formulation, the hypotheses proposed require empirical testing. We proceed to describe the procedures employed in this task. In so doing, certain methodological issues of special import to this study will be considered in order to substantiate the course of action that was chosen.

A. METHODOLOGY

In the previous chapter, we suggested that there is a need for tests of attribution hypotheses in less structured, more complex, everyday situations. In comparison with laboratory settings, it is likely that more realistic settings exact a price in ambiguity: it is more difficult to ascertain what information the attributor uses to assign causation. However, it can be argued that the benefit of

testing the utility of the attribution paradigm in less restrictive conditions outweighs this cost.

Our first task entailed the development of a research design that would enable us to assess empirically the various propositions in a more "natural" setting. At the same time, it was important to devise rigorous measures of our constructs since the advantages of more realistic tests of attribution theory would be lost if our indicators were unreliable or invalid.

In this chapter, we shall describe the methodological design of our test. In so doing, we shall report the selection of an attributional setting, the construction of operational definitions of our concepts, the development of the data collection techniques, and the collection and coding of data.

Selecting An Attributional Setting

Given the variables of interest to us, it was important to develop a research design that would elicit attention from attributors, that would have an emotional impact which stimulated a range of judges' feelings towards the actor and his behavior, and would contain stimuli allowing judges to assess the successes and failures of actors. Most research in attribution theory has utilized experimental or quasi-experimental designs in which the stimulus was a story that the judge read or reacted to, or a simple behavior that he observed. It can be argued whether such stimuli provided more than a partial test of attribution hypotheses. If it can be demonstrated that relationships revealed by such partial tests of the attribution

of causation also obtain in everyday situations, this would add to the generalizing ability of the attribution paradigm.

Two possible methods were considered to achieve our objectives. The first entailed the possibility of conducting a field experiment. However, given that we wished to obtain scores from attributors on standardized psychological tests, a field experiment did not appear to be a satisfactory method. Furthermore, given our need for stimuli that would vary on dimensions of liking-disliking and success-failure, the difficulties in designing a "natural" experiment were great.

The second alternative that was considered appeared to be more advantageous. If attributors were provided the opportunity to view a motion picture and were then given the chance to discuss it with an interviewer, it was conceivable that this might approximate a realistic attribution situation.

One has but to note the frequency with which people discuss films that they have seen to justify the idea that viewers often become interested and involved in the plots. Many times, one hears people recount a film story as if it had actually occurred in real life. They seem to talk about movies in a manner similar to the ways in which they discuss news items.

Given this observation, we attempted to select a motion picture that contained a plot in which there would arise some debate over whether the protagonist succeeded or failed and whether he was likeable or not. Several appropriate films came to mind: "Easy Rider," "The Godfather," "The Apprenticeship of Duddy Kravitz," "Last Tango in Paris," "Hombre," and "Hud." Selection of the motion

picture was to be dependent on availability and evidence in the pre-test that a range of responses could be elicited from attributors. The motion picture that was selected initially on the basis of its availability was "The Apprenticeship of Duddy Kravitz."

Selecting A Research Design

In selecting this film, it was anticipated that subjects would judge and make attributions about one character only, Duddy Kravitz. The use of a single stimulus is typically disadvantageous because such targets rarely elicit a wide range of responses from subjects across dimensions that are of interest to the researcher. However, if the subjects in our study exhibited considerable variation in their judgments of Duddy as successful-unsuccessful and liked-disliked, a correlational research design using a single target would satisfy our needs. Justification for this course of action is presented in subsequent paragraphs.

The basic differences between correlational and experimental research designs reside in the researcher's ability to assign subjects to experimental groups in the latter type of study. In classical, multivariate experimental research, factorial designs are constructed so that the influence of more than one independent variable (factor) and their interactions upon the dependent variable may be assessed. Such designs start with the cross-classification of factor values. Thus, if we are concerned with two factors, A and B, each having two values, we develop a cross-classification of four combinations: high A-high B, high A-low B, low A-high B, and low A-low B. Subjects are then randomly assigned to each of these groups. In most cases,

these factors or independent variables represent active manipulations of the subjects by the experimenter. In correlational studies, no such manipulation occurs. Rather, subjects' scores on factor A are based on their responses to items that attempt to tap the entire range of the variable from "low" to "high."

In terms of statistical analysis, experimental designs are classically subjected to analyses of variance or covariance while correlational studies are analyzed by multiple regression techniques. These statistical methods are functionally equivalent.

Given our desire to test attribution hypotheses in more realistic situations, the use of a correlational design has certain advantages. Experimental methods that use a factorial design are structured so that independent variables are always orthogonal to each other. In this way, such designs do not allow for investigations of possible intercorrelations among independent variables. For example, we have hypothesized that there may be a correlation between appreciation of an actor and judgment of his success. While a factorial design does not afford us the opportunity of testing this association, a correlational approach did.

Second, if we had constructed an experimental design in which all four of the independent variables (like-dislike, success-failure, locus of control, and psychological differentiation) were manipulated factorially, the number of experimental conditions would have been extremely high. For example, if each factor was simply dichotomized, this would have generated an experimental design consisting of 16 cells. This would have neccessitated a very large number of participating subjects. Correlational studies are advantageous in their requirement

of fewer cases in order to undertake an equivalent analysis. However, sufficient variation in each factor was necessary so that correlations were not attenuated artificially.

Even if a factorial design had been constructed for the cross-classification of like-dislike and success-failure (leaving locus of control and psychological differentiation as covariates), there were other problems. It was unlikely that a motion picture could have been found in which there were characters representing each of the four cross-classifications. Indeed, if such a film had been found, there would have been questions whether each character was developed equally in the plot and whether subjects had the same amount of information about each. That is, uncontrolled variation in the stimulus targets might have entered the experimental paradigm. This would have represented a major source of criticism of the design.

Single Versus Multiple Targets. These concerns were related to another issue. What were the advantages of using multiple stimuli as opposed to a single target in this study?

The use of multiple targets in psychological research achieves two goals. First, designs that use more than one stimulus do so in order to maximize variation in the independent variables of interest. Second, they provide greater opportunity to assess the generalizability of the research results (McGuigan, 1960).

With regard to the first goal, if a single stimulus can elicit a broad range of responses from a pool of subjects, then multiple targets may be unwarranted. Furthermore, the introduction of multiple stimuli raises additional methodological problems. The

reactions of judges may be affected by their reactions to other stimuli in the motion picture. Campbell and Stanley (1963) identify such multiple-treatment interference as a threat to the external validity or generalizability of a study. The ability to generalize is, of course, the second goal of multiple stimuli paradigms.

In many studies, such interference can be controlled by presenting stimuli in different sequences or through the use of Latin square designs (Edwards, 1968). However, in attempting to approach everyday situations through the use of a motion picture, such manipulations would be impractical for they would destroy the plot of the film.

The goal of generalizability is an important one; however, it is debatable whether our study would be significantly more generalizable by the addition of multiple targets. Given that multiple-treatment inference may obstruct our ability to generalize, it seems advisable to recommend that our study be replicated in order to make inferences of broader scope.

There is also a substantive reason for using a single stimulus in our research design. The hypotheses that have been generated focus on determining whether cognitive traits of the attributor or variable aspects of the attributional setting have more influence on the assignment of causation. The use of multiple targets diverts us from the main thrust of the dissertation. It directs our attention to the consistency of attribution, an issue that is beyond this study's scope. No hypotheses have been advanced that predict variations in attributions due to differential targets. Such propositions would require a methodological design that controlled for

differences between targets. Additionally, if one pursued this line of inquiry, the research literature on information processing and psychological differences would have to be integrated into the present study. Clearly, the prospects of adding more variables to our investigation would make for an extremely large, perhaps unmanageable, task.

All of these considerations led us to conclude that a correlational study involving a single stimulus constituted a "fair" test of our hypotheses. The choice that we have made represents an attempt to maximize two goals: the construction of a more realistic attribution setting and the development of a parsimonious, yet rigorous, methodological design. As we shall argue in the next chapter, the costs of foregoing a classical experimental design may be alleviated to a great extent by the use of particular statistical tools.

The Decision to Interview

It was decided that interviews with attributors afforded the greatest advantage as a data collection technique. First, respondents would be less likely to be cued to the purpose of the research in an open-ended interview situation. Interviewers could begin discussions of the film with the judges and seek answers to important questions within the context of a casual dialogue about the motion picture. In this way, respondents would be less likely to anticipate the purpose of the interview; thus, demand characteristics of the interviewer and the study would be minimized.

A second advantage of such interviews is that they would allow subjects to express themselves freely as opposed to other data collection techniques where responses are often limited. Thus, if the respondent did not understand fully the question put to him, the interviewer could rephrase the query. Additionally, interviewers could make use of probing questions to obtain as complete and unambiguous a response as possible.

A third desirable aspect of interviewing is that the questions asked of the attributors were not unlike those that one would ask in everyday encounters. Much of the laboratory research on attribution theory has used questionnaire items that ask attributors to rate their attraction to an actor on a scale from one to ten or to estimate to what extent (in percentage terms) an actor's success or failure was due to chance or luck versus ability or effort. Open-ended interviews afforded an opportunity to tap these assessments in a less contrived or artificial manner.

The interview schedule was organized so that interviewers who were ignorant to the hypotheses in this study could carry on an informal conversation with each judge who had seen the film. Interviewers were instructed to begin the discussions by asking each subject to give some biographical information. From this point, the interviews were tape recorded with the permission of the subjects. Then, the interviewers asked each attributor questions concerning their appreciation of the main character in "The Apprenticeship of Duddy Kravitz," their judgments as to Duddy's success or failure, and their explanations of his behavior.

Constructing Operational Definitions

A review of the hypotheses that have been generated indicates that there are five variables that are central to this study: (1) locus of control, (2) psychological differentiation, (3) judges' appreciation of the actor, (4) judges' assessments of the actor's success or failure, and (5) their attributions of the causes for the actor's success or failure. Additionally, demographic information about each attributor could also be of value in this study.

Given that the pre-test attributional setting involved the actions of a particular actor, Duddy Kravitz, some of the measures used had to be tailored for the particular situation. Specifically, indicators of liking-disliking, success-failure, and attributions had to be designed to apply specifically to the motion picture viewed by the participants. On the other hand, measures of locus of control, psychological differentiation, and demographic variables could be attained through the use of standard tests and questions.

Demographic Information. It was decided that data on sex, age, socioeconomic status, and identification with any particular ethnic or religious group should be collected. It was anticipated that only one of these variables, sex, might be important in this study. Witkin et al. (1972) report significant sex differences on various tests of psychological differentiation. Additionally, Lefcourt (1976) notes that some investigators have found significantly different scores on locus of control measures that are due to sex. Identification with an ethnic or religious group was included in order to control

for the possibility that there might be differential judgments of Duddy Kravitz who was Jewish.

While the sex of each attributor could be recorded by observation, information on the other three variables would have to be asked of each participant. Given that all judges were to be selected from university classes, information on their educational level or present occupation would be meaningless. Therefore, socioeconomic background was measured by asking them the occupation of their father.

Locus of Control. Several instruments have been used to assess internality-externality. Rotter's (1966) 23-item forced-choice Internal-External Control Scale was selected for three reasons. First, Throop and Macdonald (1971) note that this version has been subjected to rigorous validations for adult samples. Second, inasmuch as part of this study is concerned with replicating previous research on attribution and locus of control, it affords the opportunity to compare directly our results with those of other studies. Third, this scale allows us to explore the impact of dimensions of locus of control, a possibility that we have interest in pursuing.

Rotter's scale is an additive one and it may be treated as an interval variable in the interests of using all possible information. It is easily administered and produces satisfactory reliability coefficients (Rotter, 1966).

Psychological Differentiation. There are numerous measures of field independence-dependence. Some tests (rod-and-frame and tilting-room-tilting chair) require costly apparatus. Other indicators such as the

Draw-a-Person Test prove to be difficult to score and often produce low inter-judge reliability coefficients. In response to these difficulties, several researchers have constructed embedded figures tests to measure psychological differentiation. One such instrument is the Cf-1 Hidden Figures Test (French et al., 1963). This is a group-administered form wherein the respondent's task is to decide which one of five geometrical figures is located in an achromatic stimulus complex. The test is composed of two 10-minute segments, each containing 16 items. The number of correctly identified figures determines one's field independence score. This variable may be treated as an interval one. Boersma (1968) reports that this version is likely to be the most commonly used group measure of psychological differentiation because of its ease of administration and its demonstrable reliability.

Judges' Like-Dislike of the Actor. There have been numerous approaches to the measurement of one person's liking for another (Byrne, 1969; Lott and Lott, 1972); however, many of these attempts assess "liking" with single indicators whose reliability and validity are questionable. One of the few attempts to develop a multiple indicator "liking" scale has been conducted by Rubin (1970).

Rubin developed a set of 70 items that were conceived to be indicators of "liking" and "loving." These were administered to a group of 198 students. Each student was asked to respond to every item with reference to his/her current romantic involvement or, in the case of "unattached" persons, to a platonic friend. Rubin

conducted two separate factor analyses: one for subjects who responded with respect to "lovers;" the other, for respondents reacting to friends. Those items that loaded highest on the first factor for "lovers" were taken to be love scale items; those that loaded highest on the first factor for friends were conceived to be indicators of liking.

Rubin then proceeded to examine both scales for discriminant validity. He found that individual love scale items correlated highest with other items from the same scale and were uncorrelated with items on the liking scale. He noted similar patterns of discriminant validity for the liking scale. On the basis of this weak evidence and because the items exhibit face validity, it was decided to adopt this multiple-item scale and modify it for our purposes.

Rubin's scale was altered, first, by adopting only the ten of his original thirteen items applicable in our research setting. Furthermore, Rubin's instrument was composed so that each item was phrased as a declarative sentence to which respondents could indicate their agreement or disagreement. For interviewing purposes, these items were rewritten as questions so that respondents could reply in whatever manner they wished. In addition to the 10 items chosen from Rubin's battery, three other questions were asked of each respondent. Thus, thirteen items were set as an index of a respondent's appreciation of Duddy Kravitz. Each respondent's answer to every question was coded by raters on a continuum from 1 (extreme disliking) to 5 (extreme liking). Table 11 presents those indicators and their original wording if they were taken originally from Rubin's scale.

TABLE 11: LIKING-DISLIKING ITEMS

Wording of Items for This Study	Wording of Items for Rubin's Study
1. Is Duddy the kind of person you like or dislike?	11. _____ is one of the most likeable people I know.
2. Would you want to be similar to Duddy Kravitz?	12. _____ is the sort of person whom I myself would like to be.
3. Is Duddy the kind of person you admire?	13. It seems to me that it is very easy for _____ to gain admiration.
4. Can you see yourself becoming friends with Duddy?	
5. Do you have any friends who are similar to Duddy?	
6. Do you like being around people who resemble Duddy?	
7. Do you think that Duddy is well-adjusted?	2. I think that _____ is unusually well-adjusted.
8. Would you recommend Duddy for a responsible job?	3. I would highly recommend _____ for a responsible job.
9. How mature is Duddy?	4. In my opinion, _____ is an exceptionally mature person.
10. Do you think that most people would react favorably to Duddy after a brief acquaintance?	6. Most people would react favorably to _____ after a brief acquaintance.
11. Would you vote for Duddy in a group or class election?	8. I would vote for _____ in a group or class election.
12. Is Duddy the kind of person who quickly wins respect?	9. I think that _____ is one of those people who quickly wins respect.
13. How intelligent is Duddy?	10. I feel that _____ is an extremely intelligent person.

Judgments of Success-Failure. Judgments of success-failure seem to entail at least three considerations by the judge: a conception of a standard of success, a decision as to which behaviors are relevant to the chosen criterion, and a comparison of the behaviors with the criterion.

In the previous chapter, we have noted that success may be a multi-dimensional concept in so far as there are several signs of "making it." For example, Nettler (1976) argues that wealth, security, reputation, skill, and contentment are common measures of success. He suggests that "...these five criteria vary in their importance with each person's experience, with the kind of work he does, with individual ambition, and with elevation above mere subsistence" (Nettler, 1976:197).

Once judges choose criteria of success, they seem to "scan" the behaviors of actors for instances that relate to these standards. We assume that some underlying cognitive "mechanism" enables judges to sift these actions and to select relevant ones for comparison with the standards. This is the domain of psychologists who are interested in information processing.

The final step in assessing success entials the estimation of the extent to which behavior "measures up" to the selected standard. The greater the correspondence of behavior to criteria, the more successful is an individual. Again, the decision-making process involved in such comparisons may be complex.

Given this conception of the judgment of success, any attempt to measure this assessment requires the development of indicators of the criteria used, the behaviors considered, and the comparisons made.

Verbal reports of the judgments of a person's success reflected the comparison of acts to standards. Justifications of this evaluation provide specification of those behaviors deemed relevant by the judge and divulge clues as to which criteria of success are being invoked.

In order to compile data on these aspects of success-failure, open-ended, probing questions were used to elicit as many comments as possible from the respondents. These responses were then used to place each subject's assessment of the actor's behavior on a continuum from "total success" to "total failure."

Interviewers were also instructed to encourage participants to justify their judgments of success or failure by asking them to refer to film sequences that influenced their dicisions. Scenes in the film were pre-coded with reference numbers. These comments by the judges were then used to infer what criteria of success were being invoked. These standards were categorized in a systematic fashion. Nettler's (1976) list of five success criteria were chosen for the classification scheme. Each sign of success was defined operationally using the following tentative indicators:

(a) wealth - statements regarding an actor's economic gain or loss;

(b) security - judgments suggesting that an actor need not worry about future survival;

(c) reputation - statements referring to an actor's resultant prestige, fame, or social position;

(d) skill - references to an actor's ability or performance;

(e) contentment - expressions of an actor's resultant happiness, satisfaction, or sense of fulfillment.

Judges' Attributions of Causation. To stimulate judges to assign causation for the actor's success or failure, interviewers were instructed to ask subjects why such behaviors occurred. These explanations were expected to provide codable information as to whether attributors assigned the causes of the actor's successes or failures to internal or external loci.

An internal attribution was defined as a phrase that accounted for the actor's behavior in terms of personality characteristics, ability, effort, or purpose. An external attribution was a statement that located the causes in characteristics, ability, effort, or purpose. An external attribution is a statement that located the causes in characteristics of the task undertaken, pressures from other actors, luck or chance. A judge's attribution score was to be calculated as the percentage of all causal assignments that were internal.

The Research Procedure

After operationally defining our major concepts, the data collection instruments were assembled. These consisted of Rotter's Internal-External Control Scale, the Cf-1 Hidden Figures Test, and an interview schedule composed of four sections: questions about demographic characteristics, items designed to assess appreciation for the actor (a revised version of Rubin's liking scale), questions about judgments of the actor's success or failure, and questions designed to elicit attributions of causation for the actor's behavior. Copies of these materials are presented in Appendix A.

Subjects were volunteers from undergraduate sociology classes at The University of Western Ontario. They were told that they were participating in a study of people's reactions to film themes. Volunteers were informed in advance that in exchange for the "free movie," they would be asked to remain after the film for an interview and two short psychological tests.

Volunteers were then shown the film. At the end of the screening, they were administered the Cf-1 Hidden Figures Test. Subjects then made appointments to be interviewed as soon after the screening as possible. Interviewers who were blind to the hypotheses discussed the film with the participants and asked them all items that were included in the interview schedule. At the conclusion of the interview, subjects completed the Rotter Internal-External Control Scale. Upon completion of this task, they were told the actual purpose of the study.

B. PRE-TEST REPORT

A pre-test was conducted to determine whether the film, "The Apprenticeship of Duddy Kravitz," was a suitable one for our research purposes. As stated earlier, the film that would satisfy our requirements would be one that (a) elicited attention from judges, (b) had an emotional impact that provided a range of subjects' feelings towards the actor, and (c) contained stimuli that allowed judges to assess the successes or failures of the actor. Additionally, the pre-test was designed to assess the adequacy of interview items that tapped these dimensions.

Twenty-two volunteers were recruited from The University of Western Ontario to participate in the pre-test. However, only fifteen provided complete data sets. The subjects were shown "The Apprenticeship of Duddy Kravitz" and then administered the Cf-1 Hidden Figures Test immediately after the film's conclusion. All subjects were interviewed within two days of the screening. At the end of the interview, each subject was asked to complete Rotter's Internal-External Control Scale.

Demographic Characteristics

The pre-test sample contained four males and 11 females ranging in ages from 19 to 28. When asked whether they regarded themselves as belonging to any particular religious or ethnic group, three subjects described themselves as Protestants, one as Catholic, and four as Jewish. The remaining subjects did not identify with any religious or ethnic group. As expected, most participants came from middle- or upper-class families.

Rotter's Internal-External Control Scale

The mean score of the pre-test sample was 11.5 (standard deviation = 3.56) with scores ranging from 7 to 16 out of a possible 20. High scores indicate an external locus of control. This distribution was similar to those reported by researchers who have administered this test to undergraduate college samples (Lefcourt, 1976).

Cf-1 Hidden Figures Test

Results from the assessment of psychological differentiation by means of the Cf-1 Hidden Figures Test procuded a mean accuracy level

of 9.3 (standard deviation = 6.23). Pre-test scores ranged from 0 to 22 out of a possible 32 correct answers; high scores were indicative of field independence.

Liking-Disliking of Duddy Kravitz

There was considerable variation in subjects' appreciation of Duddy Kravitz. Five subjects reacted negatively towards the character in response to all 13 items while four responded positively to all items. The remaining subjects were distributed between these two extremes. This suggested that the revised version of Rubin's liking scale was a suitable measuring instrument.

Those respondents who were not consistently positive or negative across all 13 items provided some important information in the pre-test. As we have noted, an attempt was made to utilize indicators of liking of another person that had been developed by Rubin (1970). It seemed, however, that some of the items suggested by Rubin were not indicative of a respondent's attraction to Duddy Kravitz. Frequently, in the course of an interview, subjects would express their general liking of Duddy Kravitz; however, when asked specific questions that were reconstructions of items from Rubin's scale, they would respond with expressions of dislike. For example, some subjects stated that they liked Duddy Kravitz but did not think that he was well-adjusted or mature, aspects that Rubin had included in his measure of liking. This pattern of response suggested the need for a factor analysis of the thirteen items in the questionnaire schedule for the sample of respondents in the main test. This would indicate whether the

items incorporated in the interview schedule form a uni-dimensional or multi-dimensional measure.

Given the range of responses, it was decided that all 13 items comprising the rewritten version of Rubin's liking scale would be retained for the main test of our hypotheses. The data could then be factor analyzed in the interest of developing an index with high reliability.

Measuring Success-Failure

An examination of the pre-test interviews suggested that there was considerable variation in the judges' assessments of Duddy Kravitz as a success or failure. It appeared that their responses could be coded with high inter-judge reliability along two dimensions: the extent to which Duddy had succeeded or failed and the criteria used by respondents to assess such outcomes.

Two approaches to measuring the first dimension seemed possible. A separate panel of raters could be asked to listen to the tapes of the judges' comments regarding Duddy's success or failure and then attempt to place this evaluation on a five-point continuum ranging from "total success" to "total failure." The midpoint of this scale would represent instances when raters found that the judges could not make a dicision. A second strategy would entail counting the number of phrases uttered by the attributors that indicated judgements of success or failure. A respondent's score on this variable would then be calculated as the percentage of success statements based upon the total number of statements made. Both the "global"

rating and "statement" rating methods would yield interval scales. Both methods would be considered for the actual test.

We had also proposed to classify the judges' criteria in terms of wealth, security, reputation, skill, and contentment. We anticipated that the panel of raters would encounter no difficulties in coding this dimension.

A perusal of responses in the interviews indicated that three respondents judged Duddy Kravitz to be a success in all respects; seven expressed the opinion that he was either a partial failure or a partial success; five judged him to be a failure in all respects. There were also indications that we would be able to find some variation in the criteria of success invoked by the respondents.

Attributions of Causation

The procedure outlined earlier for classification of attributions as internal or external appeared to be a satisfactory method for measuring this variable. Our experience during the pre-test interviews suggested that the probing questions would be useful in stimulating the judges to respond at greater length.

Of the fifteen respondents, seven explained Duddy's behavior as stemming from internal causes only; six articulated both internal and external attributions; two made external attributions only. Again, this suggested that there was adequate variation for our research purposes.

Evaluation of the Pre-Test Results

It appeared that the selected film, "The Apprenticeship of Duddy Kravitz," satisfied our requirements. The extent to which some respondents discussed the motion picture and its major character indicated that this film elicited attention from its viewers. Furthermore, an inspection of the pre-test data suggested that suitable variation in judges' responses across all variables of interest was being achieved.

The interview schedule appeared to require no alterations in form or content. As well, the procedure that was employed seemed to offer no difficulties. It was decided, therefore, to repeat the research procedure for a second sample of volunteers in order to increase the pool of data.

C. THE MAIN TEST

A second sample of volunteers was recruited in order to increase the number of cases for analytic purposes. Complete data sets were assembled on 25 participants in the main test. The research procedure that was conducted was identical in all respects to that of the pre-test. Given this, it was decided to merge the two samples into a single one; thus, the combined total number of cases was 40.

The small sample size was somewhat problematic in so far as it reduced the power of our tests; however, Blalock (1972:163) has argued that

> a factor that is large enough to produce differences that are statistically significant in a small sample is... much more worthy of one's attention than a factor that

> produces small differences that can only be shown to be statistically significant with a very large sample.

In addition to this, the assumption of a conservative posture in the interpretation of the data reduced our concern about sample size.

Interviews varied from 20 minutes to 90 minutes in length; most lasted about 50 to 60 minutes. This variation seemed to depend upon how talkative and articulate was the respondent. For some subjects, no amount of probing seemed to stimulate further discussion. Variation in duration of interview was uncorrelated with any variable in the study.

Once the interviews were completed, two raters who were blind to the hypotheses listened to the tape recordings of each interview and independently coded the conversation. A copy of the coding manual is included in Appendix A.

In the next chapter, inter-judge reliabilities of the coding are presented. Additionally, where indices were utilized, estimates of item equivalence as measured by Cronbach's alpha and omega reliability coefficients will be reported. Then, the analysis of the data and hypothesis testing will be described.

CHAPTER 4

THE DATA ANALYSIS

After the data had been collected and coded, the next step involved the analysis of the information. Four major tasks confronted us. First, inter-judge reliability assessments of the liking-disliking, success-failure, and attribution measures had to be examined. Second, univariate distributions required examination. In the case of the liking, success, attribution, and locus of control indicators, this involved the construction of indices through the use of factor analytic techniques. Once these indices were developed and their reliabilities estimated, frequency distributions for these, and all other variables, were generated. The third task entailed the consideration of selected bivariate relationships. As we have indicated, particular attention was to be paid to the relationships between locus of control and psychological differentiation, between judgments of success-failure and liking-disliking, and between judgments of success-failure and criteria of success. The final task involved multivariate analyses of the data in order that the various hypotheses of interaction could be tested.

A. INTER-JUDGE RELIABILITIES

Two graduate students were employed as judges to code the content of the interviews. Neither judge had any previous association with this research project; therefore, both were ignorant of the hypotheses being tested. The judges were trained in using the coding manual (see Appendix A) by practicing on taped interviews that had been constructed for this purpose. These interviews consisted of conversations between the two interviewers about the film. After the training sessions, the judges proceeded to monitor the tape recordings and code the data.

For each indicator of liking-disliking, success-failure, and attribution of causation, the two judges independently scored subjects' responses. In order to assess the inter-judge reliabilities of each item, Pearsonian product-moment correlations were computed. These coefficients are presented in Table 12.

An inspection of these correlations indicates that there is substantial inter-judge reliability. With the exception of Item 13, all liking items exhibit reliability coefficients in excess of 0.70. Indeed, nine of these indicators have coefficients greater than 0.80.

Acceptable results for the indicators of success-failure also obtain. The global assessment correlation is 0.9231. Additionally, the statement/by-statement counts yield coefficients of acceptable magnitudes: 0.9211 for success statements and 0.8818 for failure. In the case of the count of "non-indicative" statements, those in which respondents indicated neither that Duddy was a success nor that he was a failure, the correlation between judges' ratings is only

Table 12: Inter-judge Reliabilities

Description of Indicator	Reliability Coefficient
Liking-disliking Items:	
Item 1	0.9041
Item 2	0.8573
Item 3	0.8801
Item 4	0.7285
Item 5	0.7854
Item 6	0.8341
Item 7	0.9374
Item 8	0.8796
Item 9	0.8743
Item 10	0.8412
Item 11	0.9068
Item 12	0.7848
Item 13	0.6841
Success-failure Items:	
Global assessment	0.9231
Number of success statements	0.9211
Number of failure statements	0.8818
Number of "non-indicative" statements	0.6087
Attribution Items:	
Number of internal statements	0.9234
Number of external statements	0.9007
Number of "non-indicative" statements	0.7004

0.6087. This lower reliability value is due to the coders' difficulties in deciding when one such "non-indicative" statement ended and another began. Thus, while one rater might count two statements being uttered, the other might count only one. While there were no systematic differences between coders, this problem certainly contributed to the low reliability for this indicator.

The reliability correlations for measures of the attribution of causation are also acceptable. For the statement-by-statement count of internal attributions, the reliability coefficient is 0.9234; for external assignments, it is 0.9007. A lack of reliability is noted for the count of "non-indicative" statements. The depressed correlation of 0.7004 may result from the same type of problem as occurred in the coding of "non-indicative" success-failure statements.

Given these satisfactory indications of inter-judge reliability, there appears to be no reason for discarding any indicators of our constructs with the exception of the "non-indicative" statement counts of success-failure and attribution. However, the elimination of these two variables in no way obstructs our ability to proceed with the analysis. The next step entails the generation of univariate frequency distributions of the variables of interest to us.

B. UNIVARIATE ANALYSES

After assessing the inter-judge reliabilities of various indicators, we proceeded to examine the frequency distributions for each variable. In those cases where there existed multiple measures of

the same construct (liking-disliking, success-failure, locus of control, and attribution of causation), indices or scales were developed before frequency distributions were generated. The construction of these composite measures and the assessments of their inter-item reliabilities are also reported here.

Demographic Characteristics

Frequency distributions of respondents' sex, age, identification with religious or ethnic groups, and socioeconomic status are presented in Table 13. Socioeconomic status was measured by asking subjects their father's occupation. This was then coded using the National Opinion Research Center (NORC) occupational prestige manual. This method produces scores with a potential range from 40 to 99; "middle class" occupations tend to range from 60 to 80 on this scale.

An examination of the table indicates that our sample is composed mainly of young middle and upper class adults. Of course, this is to be expected given the source of our sample. The only remarkable characteristic of this sample is that females are over-represented in the distribution.

Liking-Disliking

Since high inter-judge reliabilities were produced for most of the thirteen liking items, a respondent's score on each item was calculated by summing the rating of each coder and multiplying that sum by 5 so that each indicator of liking would be a variable with integer values ranging from 10 to 50.

Table 13: Demographic Characteristics

Variable	Values	Frequency	Percentage	Statistics*
Sex				
	Male	11	27.5	
	Female	29	72.5	
		40	100.0	
Age				
	18-20	12	30.0	
	21-23	19	47.5	
	24-26	2	5.0	$\bar{X}$ = 22.88
	27-29	4	10.0	s = 4.92
	30 or more	3	7.5	
		40	100.0	
NORC Occupational Score				
	40-49	1	2.5	
	50-59	6	15.0	
	60-69	9	22.5	$\bar{X}$ = 72.15
	70-79	11	27.5	x = 11.28
	80-89	11	27.5	
	90-99	2	5.0	
		40	100.0	
Religious or Ethnic Identification				
	None	21	52.5	
	Protestant	9	22.5	
	Catholic	4	10.0	
	Jewish	4	10.0	
	Other	2	5.0	
		40	100.0	

*Statistics are presented for age and occupation since only these two variables are interval level measures. $\bar{X}$ and s symbolize the mean and the standard deviation, respectively.

The correlation matrix of these thirteen items (Table 14) provides some clues as to which ones might be included in a multiple-indicator index. Items 1 to 7, 9, and 13 appear to intercorrelate; however, it is impossible to know whether they combine to form a uni-dimensional scale.

Factor analysis of these 13 items (Table 15) reveals two distinct dimensions. The first contains Items 4, 5, 6, and 13; the second, Items 1, 2, 3, and 7. A reading of the items comprising each dimension suggests that the first factor represents a measure of subjects' conceptions of Duddy Kravitz as similar or dissimilar to their own friends. The second factor seems to tap how much Duddy was liked in absolute terms. That is, it appears to measure "liking" independent of Duddy's similarity with friends of the respondents.

This interpretation makes sense intuitively. It seems likely that people make use of social comparisons in deciding whether they like a person with whom they have had limited contact. Thus, if person A is conceived to be similar to friend B, it is logical for him to view A in a positive manner. If this interpretation is correct, we would expect the two factors to correlate positively. Indeed, this is the case; the correlation between the "similarity" and "liking" factors is 0.5502.

The discovery of two identifiable factors indicates the need to proceed with caution in testing hypotheses. The possible existence of "similarity" and "absolute liking" dimensions within our "liking" items suggests that any tests of hypotheses involving the "liking" construct should be conducted twice: once with the "similarity" scale, once with the "absolute liking" scale. If no differences

Table 14: Correlation Matrix of Liking Items

Item	1	2	3	4	5	6	7	8	9	10	11	12	13
1													
2	5072												
3	4810	5450											
4	3508	3740	4344										
5	1897	3859	3211	5217									
6	4412	3533	4041	5936	3938								
7	4449	3527	6061	3371	1251	3782							
8	2529	0735	0414	-0078	1543	0255	0434						
9	2175	5638	2450	3999	4459	4385	0969	-0305					
10	2159	-0486	-0951	2538	-1091	3290	0931	2135	0931				
11	2335	0120	1646	1391	-1398	1803	1695	4217	0006	1910			
12	1718	0765	-0151	0815	0356	1988	-0019	2346	0685	3176	2752		
13	3813	1565	3295	5715	2311	3885	3267	1815	1514	2336	2884	0784	

Table 15: Factor Analysis of Liking Items

Item	Factor 1*	Factor 2*
1	.18487	.53309
2	-.03246	.48142
3	.18785	.79971
4	.77063	.26356
5	.44046	.11212
6	.56563	.25547
7	.22822	.67076
8	-.08815	.13480
9	.22869	.03664
10	.33698	-.11039
11	.09449	.21865
12	.08798	-.07002
13	.54695	.32775
Eigenvalue	3.77610	1.42649
Percent of variance	55.8	21.1

*Underlined factor loadings are those that were considered to be large enough to warrant the inclusion of that item in the index.

occur between these separate tests, this would indicate the legitimacy of combing the two dimensions into a single scale.

In anticipation of these possibilities, frequency distributions and reliability coefficients were generated for the "similarity" scale, the "liking" scale, and the combination of the two. The data are presented in Tables 16 and 17.

For the "similarity" scale, the possible range is from 40 to 200 with high scores indicative of greater conceived similarity; the actual range is from 60 to 190. The mean of the distribution is 125.375 while the standard deviation is 28.338. Further analysis indicates that the distribution of scores on this scale approximates normality.

The absolute "liking" scale has the same possible range; the actual range is from 45 to 170. The mean of this scale is 110.000 while the standard deviation is equal to 38.397.

By combining both scales, the maximum possible range is from 80 to 400 while the actual range is from 110 to 350. The mean of this distribution is equal to 235.375 and the standard deviation is 58.948. Once again, it is notable that the distribution approaches normality.

For each scale, two different measures of reliability were calculated: Cronbach's alpha and omega. Both coefficients are measures of the equivalence of items comprising an index. Cronbach's alpha is computed with the following formula:

$$\alpha = \left(\frac{p}{p-1}\right)\left(1 - \frac{\Sigma\sigma^2_{x_i}}{\sigma^2_x}\right)$$

Table 16: Frequency Distributions of "Similarity" and "Liking" Scales

	Similarity		Liking	
Score	Frequency	Percentage	Frequency	Percentage
40 - 60	0	0.0	3	7.5
60 - 80	3	7.5	8	20.0
80 - 100	4	10.0	6	15.0
100 - 120	7	17.5	5	12.5
120 - 140	12	30.0	7	17.5
140 - 160	9	22.5	5	12.5
160 - 180	4	10.0	6	15.0
180 - 200	1	2.5	0	0.0
Total	40	100.0	40	100.0
Mean	125.375		110.0	
Standard Deviation	28.338		38.397	

Table 17: Combined Liking Scale

Frequency Distribution

Score	Frequency	Percentage
80 - 120	1	2.5
120 - 160	1	2.5
160 - 200	13	32.5
200 - 240	4	10.0
240 - 280	10	25.0
280 - 320	7	17.5
320 - 360	4	10.0
360 - 400	0	0.0
Total	40	100.0
Mean	235.375	
Standard Deviation		58.948

where p is the number of items in the scale, $\Sigma\sigma^2_{x_i}$ is the sum of the variances of each item, and σ^2_x is the sum of the p by p variance-covariance matrix. Cronbach's alpha varies from zero to one in range; the coefficient indicates the probability of a respondent's answering all indicators of the same construct in the same way. Some statisticians have referred to this reliability coefficient as a conservative one inasmuch as it can be demonstrated that it approximates the lower boundary of "true reliability" (Armor, 1974).

Omega is also a measure of equivalence; however, in contrast to Cronbach's alpha, it is derived from the factor structure of a group of indicators rather than from their covariance structures. The formula for computing omega is:

$$\Omega = 1 - \frac{\Sigma\sigma_i^2 - \Sigma\sigma_i^2 h_i^2}{\Sigma\Sigma \text{Cov}\ (x_i, X_j)}$$

where $\Sigma\sigma_i^2$ is the sum of the variances of each item, h_i^2 is the communality of each item, and $\Sigma\Sigma \text{Cov}\ (x_i, x_j)$ is the sum of the variance-covariance matrix. Omega coefficients of reliability will always be greater than their respective alpha counterparts unless items are intercorrelated perfectly (in which case, alpha and omega will be identical).

The "similarity," "absolute liking," and combined indices all exhibit substantial reliability estimates. Cronbach's alpha is 0.7607 for the four-item "similarity" scale while its omega is 0.8231. In the case of the "absolute liking" scale, Cronbach's alpha is 0.7915; omega is 0.8501. When these two scales are combined to create an eight-item index, the value of Cronbach's alpha is 0.8315 while omega is 0.8952.

Discarded Items. An examination of the five items that do not load on either factor raises some interesting questions. All five indicators are revised versions of items selected from Rubin's liking scale:

"8. Would you recommend Duddy for a responsible job?"

"9. How mature is Duddy?"

"10. Do you think that most people would react favorable to Duddy after a brief acquaintance?"

"11. Would you vote for Duddy in a group or class election?"

"12. Is Duddy the kind of person who quickly wins respect?"

Earlier, we described the process by which Rubin validated his liking and loving scales through discriminant assessments. While it may be argued that Rubin has isolated a dimension that is distinct from loving, it is possible that he has attached an incorrect label to it. He assumes that these items represent a liking dimension because they were most frequently mentioned by those subjects who were judging their friends. Alternatively, it could be argued that this dimension represents some other construct such as respect, admiration, or trust.

The fact that these items did not load on either of the factors derived from our analysis suggests another interpretation. In Rubin's study, respondents were asked to answer the items with respect to someone that they had already befriended. These responses may represent a rationalization of their friendship or an effort to avoid inconsistency. Judging a friend to be immature, irresponsible, or unworthy of respect questions the basis of such friendship. Rubin's subjects may have responded to these items in order to maximize consistent images of

their friends. In so doing, their assessments are reminiscent of halo effects in social judgments.

Given that the subjects in our study were judging a stranger, the criteria for determining attraction may be substantially different. Our participants seemed to focus on Duddy's similarities with other friends and their conceptions of his intelligence and adjustment.

The discrepancy between Rubin's findings and our own suggests the need for research that attempts to test systematically for differences in the use of criteria that judges use to assess their liking of another person. Specifically, it seems important that social psychologists examine the possibility that the judgment of "liking" may be analytically distinguishable from the justification of such after friendships have been established.

Success-Failure

Two measures of success-failure were computed. The first indicator is a global one. Two coders independently rated each respondent's comments on a continuum from one (total failure) to five (total success). Given the magnitude of the inter-judge reliability coefficient (0.9231) for this variable, a respondent's global success judgment was computed by summing the rating of each coder. Scores on this variable are therefore free to vary from 2 to 10. An examination of the frequency distribution of this variable (Table 18) indicates that the maximum range is attained; the mean of this distribution is 4.4 with a standard deviation of 6.810. While the frequency distribution of this global measure is skewed, there nevertheless is considerable variation in subjects' judgments of Duddy's success-failure.

Table 18: Frequency Distribution of Global Assessments of Success-Failure

Rating*	Frequency	Percentage
2	13	32.5
3	7	17.5
4	6	15.0
5	2	5.0
6	4	10.0
7	0	0.0
8	3	7.5
9	3	7.5
10	2	5.0
Total	40	100.0
Mean	4.4	
Standard Deviation		6.810

*Calculated by summing each coder's assessment (from 1 to 5). Thus, if a subject was rated with a 4 from one coder and a 5 from the other, that subject's score would be 9.

The second measure of success-failure judgments was computed by counting the number of statements of judged success or failure made by each respondent. Each coder counted the number of success, failure, and "non-indicative" statements uttered by each subject. A respondent's score was calculated by averaging the raters' counts and expressing the number of success statements as a percentage of the frequency of failure and success statements made. Thus, if a respondent made five comments indicating judgments of success and five indicating failure, his score was 50 percent. Given that the interjudge reliability coefficient for the count of "non-indicative" statements was only 0.6087, a tally of such statements was not included in the computation.

The frequency distribution that was generated for this variable exhibits a mean of 35.660 with a standard deviation of 29.915. As with the global measure, this distribution is skewed; nevertheless, there is considerable variation in judgments of success-failure (Table 19).

Taking the global assessment of success-failure as a rough criterion measure, the adequacy of our computation of percentage of success statements may be evaluated by correlating the latter with the former. The association between these two measures is 0.8265. This suggests that the latter measure of success-failure is a valid one and can be used in our subsequent analyses.

Field Independence-Dependence Scores

The frequency distribution of subjects' scores on the Cf-1 Hidden Figures Test is presented in Table 20. An inspection of the table indicates that maximum range is attained (0 to 32 correct answers) with a mean score of 14.125 and a standard deviation of 7.806. These

Table 19: Frequency Distribution

Percentage of Success Statements

Percentage of Success Statements*	Frequency	Percentage
0 - 10	7	17.5
10 - 20	7	17.5
20 - 30	9	22.5
30 - 40	2	5.0
40 - 50	4	10.0
50 - 60	2	5.0
60 - 70	1	2.5
70 - 80	3	7.5
80 - 90	2	5.0
90 - 100	3	7.5
Total	40	100.0
Mean	35.660	
Standard Deviation	29.915	

*Calculated by expressing the number of success statements as as a percentage of success plus failure statements.

Table 20: Frequency Distribution of Field Independence-Dependence Scores

Score*	Frequency	Percentage
0 - 3	3	7.5
4 - 7	5	12.5
8 - 11	7	17.5
12 - 15	8	20.0
16 - 19	6	15.0
20 - 23	6	15.0
24 - 27	3	7.5
28 - 32	2	5.0
Total	40	100.0
Mean	14.125	
Standard Deviation		7.806

*The higher the score, the more field independent is the individual.

statistics are comparable to results reported by Boersma (1968) in his assessment of the reliability of this instrument.

Locus of Control

The distribution of scores on the Rotter Internal-External Control Scale (Table 21) is similar to those reported by Lefcourt (1976) in his review of the research on locus of control. The mean of our sample is 9.975 with a standard deviation of 5.010.

In the second chapter, we suggested that the investigation of sub-scales of Rotter's instrument might be profitable in so far as they might better correlate with other variables of interest to us. In order to develop these sub-scales, all 23 items in Rotter's scale were factor analyzed using an orthogonal varimax rotation. Nine factors emerge of which only 5 have eigenvalues greater than 1.0 (a rough indicator of each factor's statistical significance). Of these 5 "significant" factors, only the first is substantively meaningful. Four items load highly on this factor (Question 3, 12, 17, and 22); of these, the latter three appear to tap a sense of political control. As for the remaining 19 items, none load unequivocally on any one factor.

Since this dimension of "political control" has little theoretical interest for this dissertation, we recomputed the factor analysis after eliminating these four questions. This resulted in the generation of 8 factors, four of which had eigenvalues greater than 1.0. In this analysis, no interpretation of the pattern of factor loadings was possible. No "theme" could be detected among the loadings of items across factors.

Table 21: Frequency Distribution of Rotter's Locus of Control Scale

Score*	Frequency	Percentage
0 - 2	3	7.5
3 - 5	3	7.5
6 - 8	12	30.0
9 - 11	3	7.5
12 - 14	11	27.5
15 - 17	6	15.0
18 - 23	2	5.0
Total	40	100.0
Mean	9.975	
Standard Deviation		5.010

*The higher the score, the more externally controlled is the individual.

In order to reduce further the "clutter" of variables, a third factor analysis was run after eliminating those variables that loaded on none of the factors. Questions 6, 9, 11, 15, 16, 18, and 21 remained in the analysis. The results of this solution are displayed in Table 22.

An examination of the data indicates that Question 11 loads equally well on both factors. Furthermore, this variable has the lowest communality value (0.28702) of all seven items. It was therefore decided to recompute the factor analysis while excluding this item.

Table 23 presents the factor loadings for Questions 6, 9, 15, 16, 18, and 21. Two factors again emerge: the first accounts for 81.0 percent of the variance while the second accounts for 21.0 percent. Questions 16 and 17 load on the second factor while the other items load on the first. The elimination of Question 11 has, indeed, made the distribution of items across factors more clear.

Given that no substantively different interpretations could be given to the two emergent factors, all six questions were combined to form a single additive scale. The frequency distribution of this sub-scale is shown in Table 24; the mean of the distribution is 2.4500 with a standard deviation of 1.7967. Reliability coefficients were also computed yielding a Cronbach's alpha of 0.7764 and an omega of 0.8145.

An examination of the items comprising this sub-scale suggests that its content represents the extent to which respondents believe in luck or chance as opposed to ability or hard work. When one considers the theoretical arguments that were set forth earlier, this

Table 22: Factor Analysis of Selected Locus of Control Items

Item	Factor 1	Factor 2
6	.46325	.34349
9	.33402	.42056
11	.07949	.52981
15	.72322	.18549
16	.84513	.16138
18	.29875	.56884
21	.17812	.72611
Eigenvalue	2.50600	.67157
Percent of variance	78.9	21.1

Table 23: Final Factor Analysis of Selected Locus of Control Items

Item	Factor 1	Factor 2
6	.58104	.29965
9	.59070	.17815
15	.24701	.75168
16	.27774	.81587
18	.58211	.21348
21	.57463	.15227
Eigenvalue	2.36145	.55323
Percent of variance	81.0	21.0

Table 24: Frequency Distribution of Selected Locus of Control Items*

Score	Frequency	Percentage
0	6	15.0
1	8	20.0
2	9	22.5
3	5	12.5
4	5	12.5
5	5	12.5
6	2	5.0
Total	40	100.0
Mean	2.450	
Standard Deviation		1.797

*This scale was derived by adding subjects' scores on Questions 6, 9, 15, 16, 18, and 21. The higher the score, the more externally controlled was the subject.

sub-scale appears to have greater relevance for the testing of our hypotheses than does the entire locus of control scale that included indicators of a sense of political control.

Attribution of Causation

A measure of internal-external attribution of causality was computed using logic similar to that employed in calculating success-failure scores. Because the interjudge reliability coefficient for "non-indicative" statements is only 0.7004, these counts are not included in the computation. The number of internal attributions divided by the sum of internal and external assignments is expressed as a percentage in order to provide a measure of this variable.

The resultant frequency distribution (Table 25) is skewed with a mean of 71.715 and a standard deviation of 26.233. While this indicates limited variation, the distribution nevertheless appears satisfactory for our needs. Restricted variation in the dependent variable can be coped with by a logarithmic transformation of its values (Cohen and Cohen, 1975), if necessary. Additionally, restricted variation generally results in attenuated correlations with independent variables. In this sense, "conservative" estimates are generated. Thus, one is more likely to err in the direction of rejecting a hypothesis that is actually true. These possibilities will be considered in our discussion of the multivariate analyses.

Table 25: Frequency Distribution of Attribution Scores

Score	Frequency	Percentage
0 - 10	0	0.0
10 - 20	1	2.5
20 - 30	2	5.0
30 - 40	3	7.5
40 - 50	2	5.0
50 - 60	4	10.0
60 - 70	5	12.5
70 - 80	5	12.5
80 - 90	3	7.5
90 - 100	15	37.5
Total	40	100.0
Mean	71.715	
Standard Deviation		26.233

*The higher the score, the greater the percentage of internal attributions.

C. BIVARIATE ANALYSES

Three sets of bivariate relationships of theoretical interest were examined. The first group of associations represented tests of the relationship between locus of control and psychological differentiation. The second set of bivariate analyses consisted of testing the hypothesis that appreciation of an actor and judgments of his success are positively correlated. The third analysis consisted of determining whether various criteria are differentially employed by subjects in judging the success or failure of Duddy Kravitz.

Locus of Control and Psychological Differentiation

Two measures of locus of control were correlated with psychological differentiation to test Hypothesis 3; i.e., that there would be a positive association between the two variables. When the coefficient representing the relationship between the Cf-Hidden Figures Test and the entire Internal-External Control Scale is examined, a statistically insignificant, negative correlation is observed ($r = -0.1687$, $p = .149$); when the factored locus of control scale (consisting of Questions 6, 9, 15, 16, 18, and 21) is correlated with our measure of field independence-dependence, similar results occur ($r = -0.1717$, $p = .145$). The signs of these coefficients are in the predicted direction: increases in field independence scores are accompanied by modest increases in internal control scores (the negative signs are a function of the coding of locus of control scores); however, these coefficients are not of sufficient magnitudes to be statistically significant. Therefore, we reject Hypothesis 3.

It should be noted that these results are similar to those reported in studies that were cited in Chapter 2. Of greater interest to us is the question whether sub-scales of Rotter's construct are associated more highly with Witkin's construct. The difference in magnitude between the two correlations (0.0030) is not great enough in this investigation to warrant confirmation of this possibility.

Additionally, there is no evidence suggesting any discernible curvilinear relationship between psychological differentiation and either of the locus of control scales. Figures 2 and 3 represent the scattergrams of these relationships. In neither case is there any observable curvilinear pattern.

Appreciation for the Actor and Judgments of his Success

As we mentioned earlier, our factor analysis of the liking items generated two distinguishable scales: a "similarity" index and an "absolute liking" index. In addition, a third measure was generated by combining these two indices into a single scale. Each of these three indices was correlated with our measure of success-failure to test Hypothesis 4 that there is a positive association between subjects' appreciation of an actor and their judgments of his success.

Pearson's product-moment correlation coefficients were computed in each case. The association between "similarity" and the success-failure measure is in the predicted direction and statistically significant ($r = 0.4455$, $p = .002$); a similar correlation is observed between the "absolute liking" scale and success-failure ($r = 0.4825$, $p = .001$). When the two sub-scales are combined to form a single measure of subjects' appreciation of Duddy Kravitz, this index

Figure 2: Scattergram of Locus of Control by Psychological Differentiation

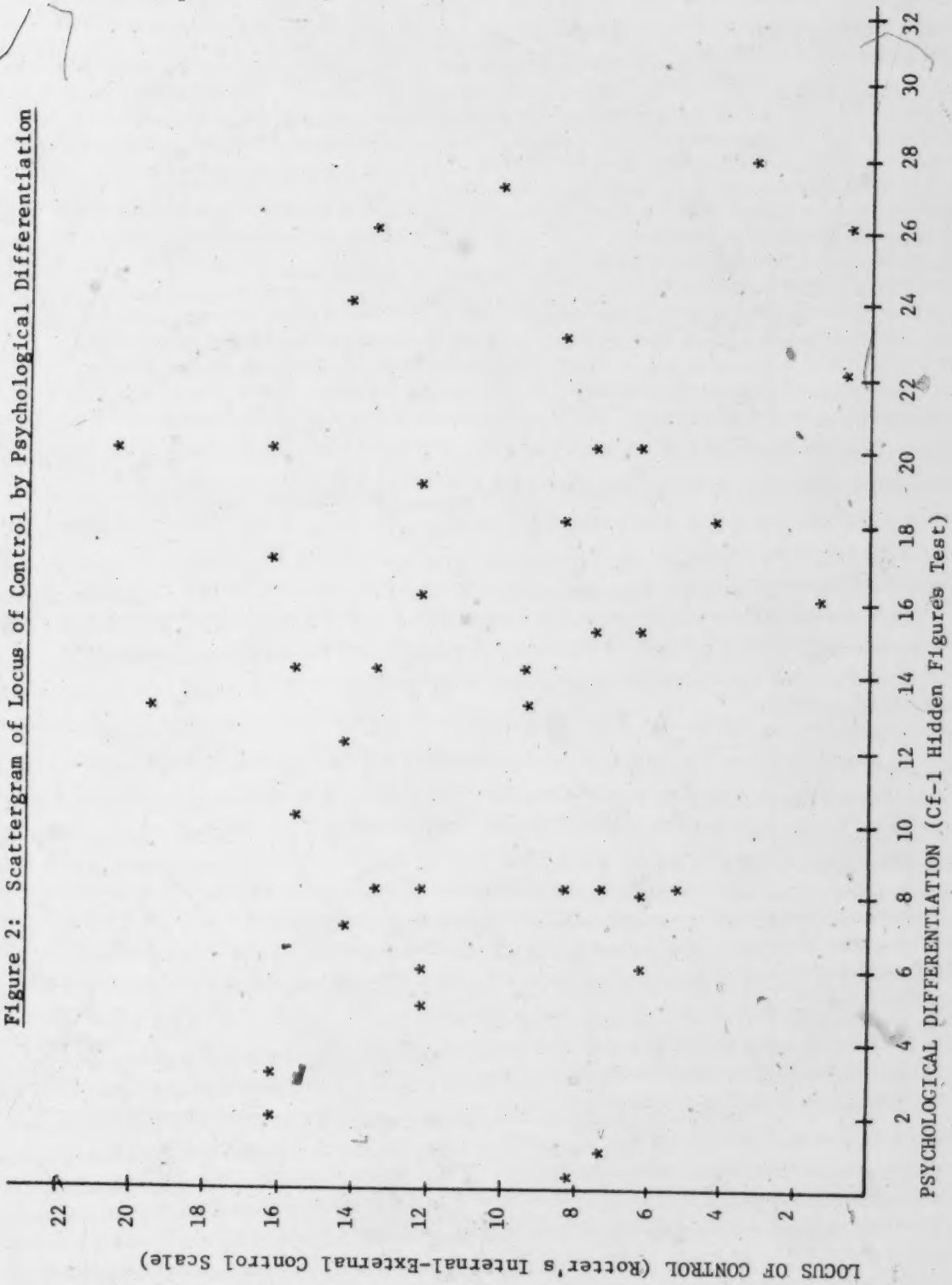
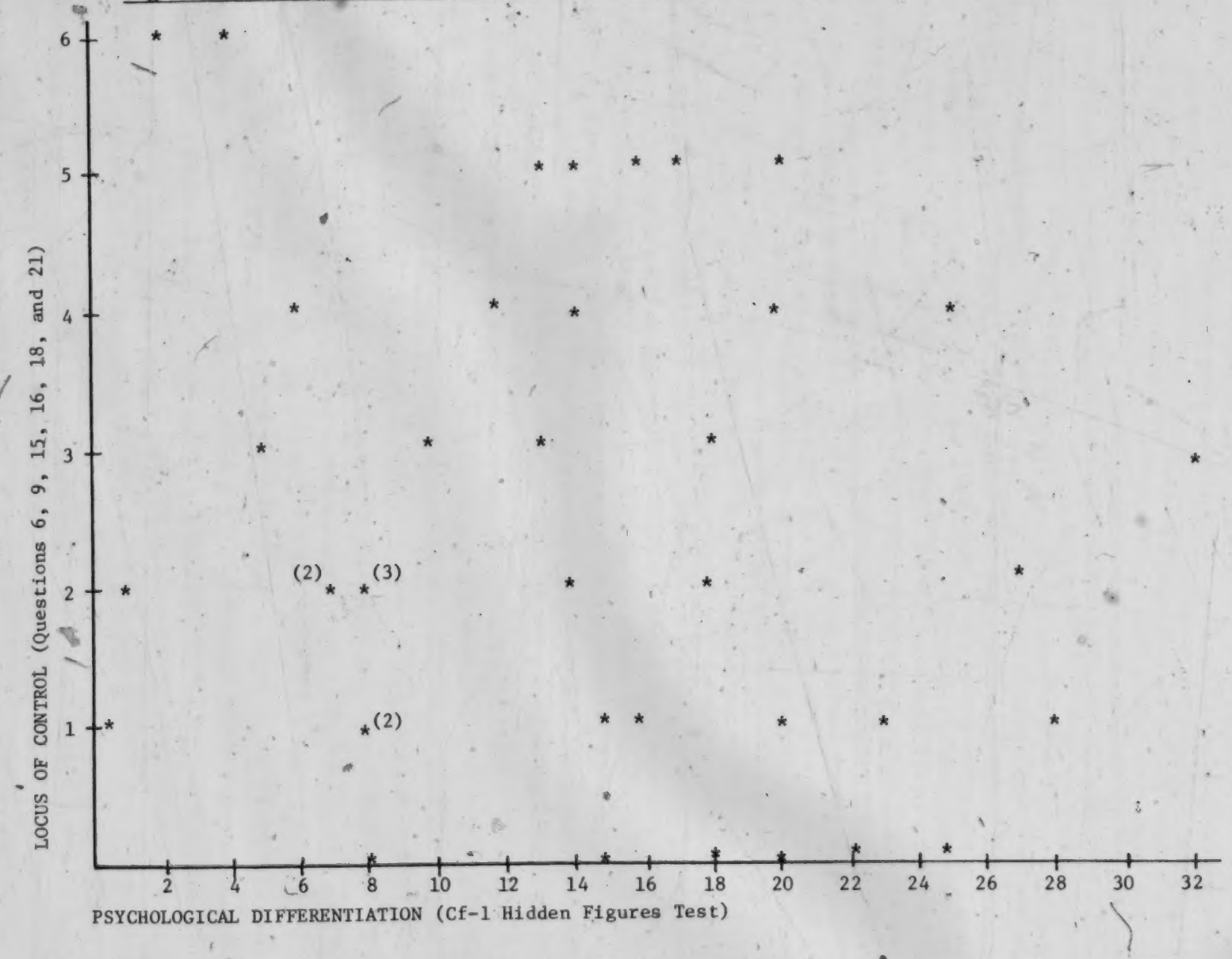


Figure 3: Scattergram of Psychological Differentiation by Selected Locus of Control Items



correlated with success-failure to an even greater extent ($r = 0.5285$, $p = .001$). Thus, Hypothesis 4 is confirmed: liking an actor and judging him or her to be successful are tangled sentiments.

Criteria for Judging Success and Failure

An examination of the criteria invoked by subjects judging the success or failure of Duddy Kravitz provided answers to two questions: (1) Given the plot of the motion picture, what criteria were most frequently articulated by judges? (2) Were the criteria invoked by subjects who judged Duddy to be successful different from those invoked by individuals who viewed him to be a failure?

Table 26 presents the bivariate tabulations of the relevant data. Six two-by-two tables represent the cross-tabulations of judgments of success-failure with the invocation of each criterion. Inspection of the column totals indicates that subjects' conceptions of Duddy's reputation was the criterion most frequently articulated: thirty-five subjects (87.5 percent of the sample) made reference to Duddy's prestige, his social relationships with other characters, or the extent to which he behaved admirably. The next most frequently cited criterion related to Duddy's acquisition of wealth: fourteen judges (35.0 percent) mentioned Duddy's financial gains and losses as justifications of their assessments of his success or failure. Ten subjects (25.0 percent) mentioned Kravitz' security (or lack of it) as influential in their judgments while a similar number referred to his contentment as determinants of their assessments of his success-failure. Duddy's skill was invoked as a criterion by five

Tabel 26: Crosstabulations of Invocation of Success Criteria by Judgments of Success-Failure*

	Wealth		Security		Reputation		Skill		Contentment		Other	
	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Failure	73.1 (19)	42.9 (6)	73.3 (22)	30.0 (3)	0.0 (0)	71.4 (25)	71.4 (25)	0.0 (0)	66.7 (20)	50.0 (5)	59.5 (22)	100.0 (3)
Success	26.9 (7)	57.1 (8)	26.7 (8)	70.0 (7)	100.0 (5)	28.6 (10)	28.6 (10)	100.0 (5)	33.3 (10)	50.0 (5)	40.5 (15)	0.0 (0)
Totals	26	14	30	10	5	35	35	5	30	10	37	3
Chi-square	2.3736		4.3022		6.7200		6.7200		0.3200		0.6006	
Significance	.1234		.0381		.0095		.0095		.5716		.4383	

*The upper entry in each cell represents a percentage of the column totals. The lower entry in parentheses represents the raw frequency. The chi-square value is corrected for small cell frequencies.

respondents (12.5 percent); only three individuals (7.5 percent) referred to criteria that could not be classified in our coding scheme.

Given the plot of "The Apprenticeship of Duddy Kravtiz," it is not surprising that the criteria of reputation and wealth were those most frequently cited. Much of the film story consists of Duddy's attempts to secure a financial empire based on real estate holdings. At the same time, his extremely variable social relationships with other characters are also revealed. For most viewers, then, the plot focuses on the social costs of financial accumulation.

An inspection of the cross-tabulations indicates that there are statistically significant differences in the invocation of criteria depending on whether Duddy was judged to be a success or a failure. Duddy's resultant reputation was more likely to be used as a criterion by subjects who viewed him as a failure. The criteria of security and skill were more often cited by judges who deemed Duddy to be successful. For the remaining desiderata, no differences were observed between respondents.

Those who thought Duddy was a failure tended to argue that he could not be trusted, that he manipulated people, or that he had lost all of his friends. Those respondents who judged him successful in terms of his security or skill referred often to Duddy's financial acumen in developing business contacts and providing a sound financial base for the future.

It is interesting that no significant relationship obtains between assessments of his success-failure and the criterion of wealth. A monitoring of the taped interviews reveals that those subjects who termed Duddy a success referred to his accumulation of

real estate at the end of the motion picture; those individuals who considered him to be a financial failure frequently noted his repeated losses of capital in various business adventures throughout the film. In other words, they seemed to question his ability to accumulate wealth consistently.

It is important to note that many of the judges' comments concerning the criteria of reputation and contentment contained ideas that were inseparable from their affective reactions toward Duddy Kravitz. This lends further support to our earlier assertion that affect and judgment of success overlap in complex situations.

D. MULTIPLE REGRESSION ANALYSIS TECHNIQUES

In order to test the hypotheses of main effects (Hypotheses 1 and 2, pages 73-74) and those predicting interaction effects (Hypotheses 5 through 11, pages 76-85), several multiple regression analyses were conducted. The basic principles of this technique and their applications to the testing of statistical interaction require brief discussion.

Principle of Multiple Regression

Nie et al. (1970:175) describe multiple regression analysis in terms that are analogous to cross-tabular analysis:

> Multiple regression is an extension of the bivariate correlation coefficient to multivariate analysis. The correlation coefficient, or normalized simple regression coefficient, allows the researcher to measure the linear relationship between a set of independent variables and a number of dependent variables while taking into account the inter-relationships among the independent variables.

> If the simple correlation coefficient is viewed as the continuous analog of two-way cross-tabulation, then multiple regression is the continuous analog of a n-way cross-tabulation.

Employing the principle of ordinary least squares, multiple regression produces a linear combination of independent variables that takes the form:

$$Y' = A + B_1X_1 + B_2X_2 + \ldots + B_kX_k$$

where Y' represents the estimated values of Y, A is the Y-intercept, the X's are independent (predictor) variables, and the B's are their corresponding regression coefficients.

Nie et al. (1975:328) describe the generation of the intercept and coefficient values as follows:

> The A and B_i coefficients are selected in such a way that the sum of squared residuals $\Sigma(Y - Y')^2$ is again minimized. This least-squares criterion implies that any other values of A and B_i would yield a larger $\Sigma(Y - Y')^2$. Selection of the optimum A and B_i coefficients using the least-squares criterion also implies that the correlation between the actual Y values and the Y' estimated values is maximized, while the correlation between the independent variables and the residual values (Y - Y') is reduced to zero.

One can also compute standardized regression coefficients (β_i) from the unstandardized partial regression coefficients (B_i). These are generated by multiplying the unstandardized coefficient by the ratio of the standard deviation of the independent variable to the standard deviation of the dependent one. Thus, if X_i is an independent variable in the regression equation, Y_j is a dependent variable in the same equation, and B_{ji} is the unstandardized partial regression

coefficient of the two variables, then the standardized regression coefficient, β_{ji}, will equal $(B_{ji})\ (\sigma_i/\sigma_j)$. Standardized regression coefficients will normally range from minus one to plus one except in instances where multicollinearity obtains, in which cases they may exceed these limits.

Testing for Statistical Interaction

In general, it is assumed in multiple regression analysis that the effects of the various independent variables upon the dependent one are additive. That is, the effect of X_1 on Y is the same across different values of the other independent variables in the regression equation. In other words, the multiple regression technique assumes a model in which there is an absence of statistical interaction.

Increasingly, investigators whose data are not amenable to analyses of variance or covariance techniques have become interested in testing the statistical significance of interacting independent variables upon their dependent ones. Nie et al. (1975:373) note that:

> The most widely used approach to the problem of interaction is the inclusion of multiplicative terms in the regression equation. As the name implies, a multiplicative term is the product of two or more other terms. It is a new predictor variable created by multiplying scores on one predictor by corresponding scores on one or more others. For example, the equation
>
> $$Y' = A + B_1X_1 + B_2X_2 + B_3X_1X_2$$
>
> includes the two predictors X_1 and X_2, and the multiplicative term X_1X_2 created by multiplying X_1 scores by corresponding X_2 scores. While this latter equation is still "additive" in form, the multiplicative term represents the "joint effect" of X_1 and X_2 over and above the sum of B_1X_1 and B_2X_2.

It follows that the testing of a three-way interaction ($B_7X_1X_2X_3$) will require that all main effects (B_1X_1, B_2X_2, and B_3X_3) and all two-way interactions ($B_4X_1X_2$, $B_5X_1X_3$, and $B_6X_2X_3$) must also be included in the regression equation.

Nie et al. (1975) and Cohen and Cohen (1975) note that the addition of multiplicative terms to the regression equation always increases the proportion of variance explained by the equation (R^2); however, such an increase is not always substantial. They suggest that the most appropriate test of the significance of an interaction effect is the hierarchical F test. The general formula for this test of the significance of a variable X_k is as follows:

$$F_{(X_k)} = \frac{(R^2_{y.12,\ldots,k} - R^2_{y.12,\ldots,k-1})/1}{(1 - R^2_{y.12,\ldots,k})/(N - k - 1)}$$

with degrees of freedom, 1 and N - k - 1, where k is the number of independent variables in the regression equation, the numerator is the explained variance due to the addition of X_k, and the denominator is the unexplained variance divided by N - k - 1 degrees of freedom.

In testing the hypotheses that have been generated, two pieces of information are of interest: the hierarchical F test of significance and the sign of the coefficient of the variable or interaction term being considered. The sign of the coefficient in the case of interaction indicates whether the hypothesized joint effect is in the direction predicted.

E. TESTING THE HYPOTHESES

In this section, data are presented that constitute tests of each of the eleven hypotheses. For each proposition, the prediction will be restated and the evidence will be examined. Since Hypotheses 3 and 4 have already been tested in Section C, these results will be reviewed briefly.

Some Preliminary Comments

Earlier in this chapter, the univariate analyses of the data suggested to us that certain strategies might be pursued. Specifically, four analytic possibilities were mentioned: (1) The impact of demographic characteristics of the subjects had to be assessed. (2) The effect of using the factored "similarity" index, the "absolute liking" index, or the combined scale upon the results of the analysis had to be determined. (3) The differential influence of using the entire locus of control scale as opposed to a factored sub-scale required investigation. (4) The advantage of transforming the dependent variable into a logarithmic function needed examination.

Regarding the first issue, no differences occur due to demographic characteristics of the judges. As we had noted earlier, the only variable that was predicted to have any impact was respondents' sex. Sex differences are not statistically significant for any single variable or for the multiple regression analyses.

Three multiple regression analyses were computed using each of the "similarity," "absolute liking," and combined scales. All three computations produced similar results with respect to variance

explained and the magnitude of the various regression coefficients. Given this convergence of results, it was decided to use the 8-item combined scale as our measure of judges' appreciation of Duddy Kravitz.

Similarly, the multiple regression results using the entire Internal-External Control Scale and the factored 6-item sub-scale were almost identical. Because the sub-scale had substantive content of greater interest to us, we decided to use this index as our measure of locus of control.

Two multiple regression analyses were undertaken using variations of the dependent variable, attribution of causation. The first computation included the dependent variable in its skewed distributional form. The results of this computation were compared with a natural logarithmic transformation of the same variable. Again, the observation that regression coefficients and explained variance remained essentially the same led us to use the original, skewed variable for testing the hypotheses.

Measures Employed

Thus, the variables used to test our hypotheses consisted of the following: (1) an 8-item index of liking, (2) a measure of respondents' judgments of Duddy Kravitz' success-failure computed by statement counts, (3) the 32-item Cf-1 Hidden Figures Test as a measure of psychological differentiation, (4) a 6-item sub-scale derived from a factor analysis of Rotter's Internal-External Control Scale, and (5) a measure of respondents' attributions of causation derived from statement counts.

The Correlation Matrix

Given four independent variables (liking-disliking = L, success-failure = S, internal-external locus of control = C, field independence-dependence = F), four main effects and eleven interaction effects upon the dependent variable (internal-external attribution of causation = A) may be computed. As we have discussed earlier, interaction terms may be constructed by taking the multiplicative product of the main effects entering the interaction. Thus, a liking-success joint effect is represented by (L x S) and a three-way interaction among liking, success, and locus of control is designated as (L x S x C).

With the four main effects, 11 interaction effects, and the dependent variable, a total of 16 variables are possible entries in the multiple regression analysis. The intercorrelation matrix for these variables is presented in Table 27 while the means and standard deviations are tabulated in Table 28. It should be noted that several of the means and standard deviations of the interaction terms are not meaningful inasmuch as these variables are products of main effects.

Testing the Hypothesized Main Effects

(1) There will be a main effect due to success-failure (S).

(2) There will be a main effect due to locus of control (C).

In order to test these two hypotheses, attribution of causation (A) was regressed on the four main effect variables (L, S, C, and F). The results of this analysis are presented in

Table 27: Correlation Matrix of Variables

Entered in Multiple Regression Analyses*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
2	1910														
3	1194	5285													
4	-0880	-1191	-1654												
5	-0310	-2021	-0590	-1687											
6	2133	6476	9752	-2124	-0604										
7	-0638	1348	-0565	9507	-2586	-0738									
8	0865	3036	2145	-2489	8372	2640	-2090								
9	-1645	1651	5915	4984	-1957	4852	5514	-1254							
10	1187	3438	7730	-2159	4540	7414	-1676	6768	3401						
11	0114	-2845	-1953	6886	4616	-2436	5567	2560	2450	0465					
12	-0977	2870	6271	4503	-2240	5579	5507	-1043	9751	3367	1773				
13	2150	4602	7812	-2569	4049	7935	-1810	6891	2684	9770	-0259	2980			
14	0514	-0439	-1004	7045	3722	-1314	6677	3314	3249	1257	9353	2915	0720		
15	-0528	0451	5220	3289	2644	3983	3258	3073	7802	6390	4760	7157	5271	5466	
16	0260	1565	5633	2920	2496	4730	3334	3496	7700	6672	4236	7534	2150	5365	9723

*Legend: 1 = A, 2 = L, 3 = S, 4 = C, 5 = F, 6 = (L x S), 7 = (L x C), 8 = (L x F), 9 = (S x C), 10 = (S x F), 11 = (C x F), 12 = (L x S x C), 13 = (L x S x F), 14 = (L x C x F), 15 = (S x C x F), 16 = (L x S x C x F).

Table 28: Means and Standard Deviations of Variables Entered in Multiple Regression Analyses

Variable	Mean	Standard Deviation
A	71.71	26.23
L	235.38	58.95
S	35.66	29.91
C	2.45	1.80
F	14.13	7.81
(L x S)	9302.11	9129.88
(L x C)	564.38	444.81
(L x F)	3234.00	1897.00
(S x C)	78.70	91.51
(S x F)	490.28	597.01
(C x F)	32.30	30.97
(L x S x C)	19392.84	23823.94
(L x S x F)	127194.48	174018.94
(L x C x F)	7096.13	6744.21
(S x C x F)	975.35	1439.85
(L x S x C x F)	233302.81	356507.19

Table 29. An inspection of the data indicates that none of the main effects is related significantly to the dependent variable. Although both the success-failure and locus of control variables are associated with the attribution of causation in the direction predicted, the standardized regression coefficients are miniscule. On the basis of this evidence, we reject Hypothesis 1.

To some extent, these data contradict previous research results. It will be recalled (Chapter 2) that most investigations of the achievement-attribution hypothesis involve unambiguous situations where the success or failure of an actor is clear to the observer. Feather and Simon's (1975) attempt to provide attributors with a vague situation represents one of the few tests of this correlation that is similar to the present study. However, their findings concerning the impact of judgments of success-failure on attribution are contradictory to ours.

One reason for these divergent results may be the degree of ambiguity with which our subjects were confronted. In the film, Duddy Kravitz exhibits a multi-faceted personality. Many of the subjects expressed difficulty in deciding whether Duddy succeeded or failed and, having made a judgment, they had problems articulating the reasons for his success or failure. To use Heider's terminology, it seemed that their abilities as "naive psychologists" failed them in the ambiguous situation. The data suggest that the evaluation of an individual as a success or a failure in a vague situation is not sufficient in itself to influence an attributor's causal judgments.

On the basis of the evidence, we also reject Hypothesis 2. Most of the studies cited earlier in this dissertation confirm the

Table 29: Multiple Regression of Attribution of Causation on Main Effect Variables*

Variable	B	β	R^2
Success-Failure(S)	0.0147	0.0167	0.0143
Like-Dislike(L)	0.0771	0.1732	0.0048
Locus of Control(C)	-0.9538	-0.0653	0.0220
Field Independence(F)	-0.0203	-0.0060	0.0000
		Total R^2 =	0.0411

*For this, an subsequent, multiple regression tables, B = unstandardized regression coefficient, β = standardized regression coefficient, and R^2 = the proportion of variance in the attribution of causation explained by each independent variable. An asterisk (*) indicates that a standardized path coefficient is statistically significant (p = .05).

locus of control-attribution of causation correlation. Our results are in accord with those of Gilmor and Minton (1974) only. Unfortunately, the source of these contrasting research results is not clear.

Testing the Hypothesized Intercorrelations Among Independent Variables

(3) There will be a positive correlation between locus of control (C) and psychological differentiation (F).

The results of the statistical tests of this hypothesis have been reported in Section C of this chapter. Field independence-dependence scores correlate with both the entire locus of control scale and with a factored sub-scale. In both cases, correlations are statistically insignificant but in the predicted direction. On the basis of this evidence, we reject Hypothesis 3.

(4) There will be a positive correlation between judges' appreciation of an actor (L) and their assessments of him as successful (S).

The statistical tests of this proposition have also been reported earlier. The correlations between our measure of success-failure and the three scales measuring liking are all statistically significant and in the predicted direction. Thus, we tentatively accept Hypothesis 4.

Testing the Hypothesized Interaction Effects

(5) There will be a success-failure (S) by liking-disliking (L) interaction effect.

Table 30 presents the multiple regression test of the (L x S) interaction effect. The nature of the hypothesized interaction is such that we expect the joint effect of liking and success to be positively associated with the attribution of causation. Inspection of the data indicates that this interaction term is significantly related to the dependent variable in the predicted direction and accounts for 21.78 percent of the variance in the attribution of causation.

This analysis generates the following regression equation:

$$A = 111.5040 - 2.2628(S) - 0.1632(L) + 0.0085(L \times S)$$

By substituting various values of (S) and (L) into the formula, the pattern of interaction may be determined. Two values of (S), one indicative of a judgment of success, the other of failure, and two similarly selected values of (L) provide four possible combinations for substitution into the regression equation: (1) a liking-success pair of values, (2) a liking-failure pair, (3) a disliking-success pair, and (4) a disliking-failure pair. The four predicted values of (A) derived from entering each of these pairs indicates that subjects who liked Duddy Kravitz attributed his success to internal loci and his failure to external sources. Those who disliked him assigned the causes of his success to external sources and his failure to internal ones. Given this information, we tentatively accept Hypothesis 5.

Table 30: Multiple Regression Test of the L × S Interaction Effect

Variable	B	β	R^2
Success-Failure(S)	-2.2628	-2.5804*	.0143
Liking-Disliking(L)	-0.1632	-0.3667	.0227
Interaction(S × L)	-0.0085	-2.9671*	.2178
		Total R^2 =	.2548*

This finding is in accord with most research on the balancing of appreciation of actors and attribution of the causes of their actions. It corresponds to the results reported by Regan et al. (1974) and Schiffman and Wynne (1963) and to the theoretical positions of Kelley (1967) and Heider (1957).

Cautions. Two statistical notes must be made at this time. First, the fact that standardized regression coefficients exceed an absolute value of one indicates the presence of multicollinearity among independent variables. Multicollinearity refers to high intercorrelations (in the 0.8 to 1.0 range) among independent variables. In this particular regression analysis, the liking-success interaction term and the success variable correlate at 0.9752. However, inasmuch as the main effect of success is insignificant in the regression of attribution on the four main effects in the previous analysis (see Table 29), the significance of the interaction effect appears to be valid despite the multicollinearity problem.

The second point to note is that no substantive interpretation is possible of the main effect coefficients in a multiple regression test of an interaction. For example, in testing the liking-success interaction, the regression coefficients for the constituent main effects are meaningless by themselves. Of course, they are important in determining the pattern of interaction by substitution of values into the regression equation. However, the sole reason for entering the main effects with the interaction variable is to estimate the magnitude of the joint effect controlling for the impact of the main effects.

(6) There will be an interaction effect due to success-failure (S) and locus of control (C).

In order to test this proposition, attribution of causation was regressed on success-failure (S), locus of control (C), and the interaction term (S x C). The results of this analysis are summarized in Table 31. The data indicate that the interaction term accounts for a significant proportion of the variance in the attribution of causation (0.1315). However, an investigation of the pattern of interaction reveals that its character is considerably different from that found by previous researchers. The nature of the interaction in this study indicates that internally controlled subjects were more likely to attribute Duddy's success to internal sources while externally controlled respondents assigned causation externally. No differences are found between internals and externals who judged Duddy to be a failure.

This observed pattern is similar to that reported by Gilmor and Minton (1974). Indeed, when one recalls that Gilmor and Minton's investigation and our own reported an insignificant main effect of locus of control on the attribution of caustion, this convergence is striking. The data suggest that internals' and externals' conceptions of the world influence their attributions of causation for successful outcomes but not for failures. While no conclusive explanation of this pattern is apparent, speculation is possible.

Recalling the tendency of subjects who judged Duddy to be successful to invoke criteria related to concrete, financial advancement, one tentative explanation emerges. The conception on the

Table 31: Multiple Regression Test of the S × C Interaction Effect

Variable	B	β	R^2
Success-Failure(S)	0.5076	0.5788*	0.0143
Locus of Control(C)	5.0634	0.3468	0.0048
Interaction(S × C)	-0.1949	-0.6797*	0.1315
		Total R^2 =	0.1506

part of some respondents that Duddy had made a concrete achievement in terms of financial gains may have served to invoke closure on the situation for them. That is, these subjects may have conceived a conclusion to the story in the following manner: the story of Duddy's financial success may have contained information that encouraged respondents to attribute causation in directions consistent with their own loci of control. For example, Duddy's chance encounters with wealthy businessmen may have been ample evidence for externally controlled persons to assign the causes of his success to good luck. Conversely, Duddy's continual hard work and struggle to amass land may have confirmed internally oriented judges' predispositions; hence, they could attribute his success to effort.

In the cases of subjects who judged Duddy to be a failure, the conditions for making attributions may have been less clear. Closure may not have been experienced by these respondents at the end of the motion picture. A monitoring of the taped conversations revealed that most subjects thought that Duddy's failure was manifest in his ill treatment of friends and his abuse of trusting relationships. However, many subjects who made these kinds of judgments also indicated that it was exceptionally difficult for them to explain his failure because of the many factors involved and because Duddy showed potential for successful social relationships that subjects predicted to come to fruition in the future. Given this ambiguity, the lack of differentiation between internally and externally oriented individuals' attributions of the causes of failure may represent a need for more information. Without conclusive information, these

subjects may have vacillated in their attributions of causation because there was a lack of concrete evidence to confirm their predispositions.

Again, it is stressed that this is a tentative explanation. This suggests that future research which focuses on the availability and clarity of information might be profitable for analyzing this particular interaction.

Returning to the assessment of the data that constitute the test of this hypothesis, the existence of a success-locus of control interaction is confirmed although the pattern of the joint effect is contrary to our prediction. Taking this into account, we tentatively accept Hypothesis 6 with its attendant modifications.

(7) Psychological differentiation (F) and locus of control (C) will have an interaction effect upon the attribution of causation.

Inspection of Table 32 reveals that the (C x F) interaction term is statistically insignificant although it is in the direction predicted. This joint effect accounts for only 5.38 percent of the variance in causal attributions. Furthermore, the inclusion of this interaction variable and its constituent main effects accounts for an insignificant 6.37 percent of the variance in the dependent variable. Thus, we reject Hypothesis 7.

Table 32 : Multiple Regression Test of the C × F Interaction Effect

Variable	B	β	R^2
Field Independence(F)	-1.2447	-0.3704	0.0010
Locus of Control(C)	-7.6578	-0.5245	0.0089
Interaction(C × F)	0.4604	0.5436	0.0538
		Total R^2 =	0.0637

(8) There will be a three-way interaction effect among success-failure (S), liking-disliking (L), and locus of control (C).

The data used to test this hypothesis are tabulated in Table 33. Consideration of the data leads us to conclude that the (L x S x C) interaction is not statistically significant although its coefficients are in the hypothesized direction. The data indicate that the success-locus of control interaction (S x C) and the liking-success joint effect (L x S) account for the greatest amount of explained variance in the dependent variable (11.18 percent and 12.31 percent, respectively).

Since considerable multicollinearity exists between the success-locus of control interaction and the three-way joint effect ($r = 0.9751$), the multiple regression analysis was recomputed after deleting the former two-way effect. This is a standard procedure for coping with problems of multicollinearity (Nie et al., 1975). The results of this analysis after the deletion are reported in Table 34. When this table is compared with its predecessor, we note that the total proportion of explained variance is essentially unchanged. Additionally, the (L x S x C) interaction does not account for significantly more variance in the dependent variable with the exclusion of the collinear term. Rather, the elimination of the success-locus of control interaction results in a substantial increase in the variance explained by the liking-success interaction effect. On the basis of this evidence, we therefore reject Hypothesis 8.

Table 33: Multiple Regression Test

of the L x S x C Interaction Effect

Variable	B	β	R^2
Success-Failure(S)	-2.2122	-2.5227	0.0143
Liking-Disliking(L)	-0.1884	-0.4234	0.0227
Locus of Control(C)	0.1720	0.0118	0.0040
Interaction(S × C)	0.0676	0.2357	0.1118
Interaction(L × C)	0.0122	0.2070	0.0002
Interaction(L × S)	0.0090	3.1214	0.1231
Interaction(L × S × C)	-0.0005	-0.4847	0.0020
		Total R^2 =	0.2781

Table 34: Multiple Regression Test

L × S × C Interaction Effect (S × C Deleted)

Variable	B	β	R^2
Success-Failure(S)	-2.0271	-2.3116*	0.0143
Liking-Disliking(L)	-0.1736	-0.3902	0.0227
Locus of Control(C)	1.7752	0.1216	0.0040
Interaction(L × C)	0.0062	0.1048	0.0197
Interaction(L × S)	0.0083	2.9035*	0.2038
Interaction(L × S × C)	-0.0003	-0.2684	0.0133
		Total R^2 =	0.2778

(9) There will be an interaction effect due to specific combinations of success-failure (S), liking-disliking (L), and psychological differentiation (F).

Three separate analyses were conducted to test the ninth hypothesis. The first multiple regression computation consisted of regressing the dependent variable on all main effects and interactions constituting the three-way effect to be tested. Table 35 presents the relevant data. An inspection of this information indicates that the hypothesized interaction is in the predicted direction; however, its standardized regression coefficient is statistically insignificant.

Since the main effects of success, liking, and psychological differentiation proved earlier to be non-significant, we recomputed the multiple regression equation while excluding these variables. The three two-way interaction effects were assumed to include the explained variance attributable to these main effects; therefore, if the total explained variance in this reduced model approaches that of the saturated one, then one can retest the (L x S x F) interaction. While these results cannot constitute as conclusive a test as the one just reported, it can provide further clues as to the nature of this interaction.

Table 36 displays the information required for examining this three-way interaction. A comparison with the previous analysis (see Table 35) reveals that the deletion of the three main effect variables results in a considerable increase in the proportion of the variance in attributions of causation accounted for by the three-way interaction. At the same time, there is a significant, concomitant

Table 35: Multiple Regression Test of the L × S × F Interaction Effect

Variable	B	β	R^2
Success-Failure(S)	-3.71224	-3.7122	0.0143
Liking-Disliking(L)	-0.2562	-0.5757	0.0227
Field Independence(F)	-1.7127	-0.5096	0.0000
Interaction(L × S)	0.0109	3.7888	0.2243
Interaction(L × F)	0.0021	0.1549	0.0271
Interaction(S × F)	0.0384	0.8748	0.0170
Interaction(L × S × F)	-0.0001	-0.3817	0.0005
			Total R^2 = 0.3059

Table 36: Multiple Regression Test of the L × S × F Interaction Effect (Main Effects Deleted)

Variable	B	β	R^2
Interaction(L × S)	-0.0008	-0.2771	0.0455
Interaction(L × F)	-0.0035	-0.2519	0.0010
Interaction(S × F)	-0.0963	-2.1921*	0.0151
Interaction(L × S × F)	0.0004	2.7501*	0.1888
			Total R^2 = 0.2505*

decrease in the proportion of variance explained by the liking-success interaction. The results of this reduced multiple regression analysis suggest that the (L x S x F) joint effect might have significant impact in a saturated model if the collinearity between success-failure and the success-liking interaction were held to a minimum. These data indicate that the statistical insignificance in the saturated regression model might be the result of a statistical artifact.

The third analysis consisted of regressing the dependent variable on the three two-way interaction effects. When the results of this regression are compared with those reported in Table 36, no significant differences in the total explained variance occur between the two equations. This suggests that the three-way interaction (L x S x F) may be insignificant.

Because substitution into the regression equation for the saturated model results in a configuration of interaction similar to the one predicted, there is some justification for accepting this hypothesis. The success-liking interaction that we observed earlier is stronger for field dependent subjects than for field independent ones. Nevertheless, the actual test proved to be statistically insignificant. Therefore, in the interests of conservative interpretation of the data, we reject Hypothesis 9 with reservations.

(10) There will be a success-failure (S) by locus of control (C) by psychological differentiation (F) interaction effect.

Table 37 presents the data used to test this hypothesis. The data indicate that the three-way interaction is neither statistically significant nor in the predicted direction. Attempts to reduce multicollinearity by the exclusion of various effects also fail to alter the results such that significance is obtained. Given this evidence, we reject Hypothesis 10.

(11) There will be a four-way interaction effect involving all of the independent variables: (L), (S), (C), and (F).

An examination of the statistical test of this interaction effect (Table 38) reveals that it is not related significantly to the dependent variable. Furthermore, no distinguishable patterns within the interaction can be recognized. Therefore, we reject Hypothesis 11.

F. SUMMARY

The data analysis that has been presented reveals several interesting relationships. The results of our investigation confirm the prediction that one's appreciation of an actor may not be mutually exclusive of one's judgment of that actor's success. Furthermore, these two conceptions of the actor interact such that attributors assign the causes of liked actors' successes to internal sources while

Table 37: Multiple Regression Test of the S × C × F Interaction Effect

Variable	B	β	R^2
Success-Failure(S)	0.6716	0.7658	0.0143
Field Independence(F)	-1.0496	-0.3123	0.0006
Locus of Control(C)	2.2806	0.1562	0.0056
Interaction(S × C)	-0.3163	-1.1034	0.1355
Interaction(S × F)	0.0101	-0.2310	0.0011
Interaction(C × F)	0.2182	0.2576	0.0539
Interaction(S × C × F)	0.0085	0.4645	0.0090
		Total R^2 =	0.2200

Table 38: Multiple Regression Test

of the L × S × C × F Interaction Effect

Variable	B	β	R^2
Success-Failure(S)	-1.2793	-1.4588	0.0143
Liking-Disliking(L)	0.0869	0.1954	0.0227
Field Independence(F)	3.9541	1.1766	0.0000
Locus of Control(C)	35.7091	2.4458	0.0040
Interaction(S × C)	-0.8035	-2.8028	0.1158
Interaction(L × C)	-0.1409	-2.3889	0.0000
Interaction(L × S)	0.0053	1.8366	0.1273
Interaction(L × F)	-0.0232	-1.6753	0.0238
Interaction(S × F)	-0.1395	-3.1759	0.0111
Interaction(C × F)	-2.1833	-2.5779	0.0932
Interaction(L × S × C)	0.0021	1.8845	0.0063
Interaction(L × S × F)	0.0005	3.2642	0.0001
Interaction(S × C × F)	0.0579	3.1767	0.0575
Interaction(L × C × F)	0.0095	2.4436	0.0086
Interaction(L × S × C × F)	-0.0002	-2.0492	0.0039
		Total R^2 =	0.4886

they attribute their failures externally. Conversely, disliked actors' successes are attributed externally; their failures, internally.

There is also support for the prediction that the attribution of causation is influenced by the interaction of an individual's locus of control orientation and his judgment of an actor's success or failure. When an actor succeeds, people attribute causation for that outcome in a direction consistent with their own orientations; when an actor fails, internally and externally controlled attributors are undifferentiated.

Partial confirmation of a joint effect of success-failure judgments, appreciation of the actor, and psychological differentiation exists. The data suggest that field independent judges are less likely to be influenced by characteristics of the actor when making causal attributions.

One other significant relationship emerges from this investigation. An exploration of the use of criteria for judging the success or failure of Duddy Kravitz reveals that such standards are invoked differentially. The data indicate that subjects who viewed Duddy Kravitz to be a failure were more likely to remark about his reputation (his social relations and manipulation of other people). Those who judged him to be successful tended to focus on his skill as a businessman or the security that he had provided himself for the future.

The relationships between the attribution of causation and the main effects of locus of control and success-failure are statistically insignificant but in the predicted direction. Similar results obtain for the locus of control-psychological differentiation two-way

interaction. As well, the success-liking-locus of control joint effect on the assignment of causation is insignificant but in the hypothesized direction.

The three-way interaction among success-failure, locus of control, and psychological differentiation and the four-way joint effect of all the independent variables are both statistically insignificant and contrary in sign to the predictions made.

In the next chapter, the questions posed in Chapter 2 will be considered on the basis of the empirical evidence that has been reported here. In addition, implications of this research and suggestions for further investigations will be proposed.

CHAPTER 5

IMPLICATIONS AND CONCLUSIONS

In Chapter 2, we asked four questions concerning the attribution paradigm. In light of the investigation that has been reported here, answers to these queries will be provided. Beyond these specific answers, this research has implications for the study of the attribution of causation and for considerations of a more general nature. These will also be discussed.

A. RESPONSES TO OUR ORIGINAL CONCERNS

Four questions were formulated at the outset of this dissertation. Two of these are of critical importance to the development of the attribution perspective. One question concerns the generalizability of laboratory research results to less restricted, more realistic situations. A second question concerns the impact of cognitive characteristics of the attributor upon his causal assignments. Two other questions are of secondary significance to attribution theorists; however, they are of interest to social psychologists in general. One query relates to the relationship between psychological differentiation

and locus of control. The other concerns the association between judges' appreciation of an actor and their assessments of him as a success or a failure.

Do Attribution Theory Predictions Obtain Outside the Laboratory?

Our research partially replicates those laboratory studies that have investigated the correlations among appreciation of an actor, judgments of his success or failure, attributor's locus of control, and the assignment of causation. Four of our hypotheses represent tests concerning the generalizability of experimental findings to more natural situations.

Success-Failure. We have cited several laboratory investigations that have reported positive correlations between judgments of an actor's success or failure and the attribution of causation. A considerable number of studies (see page50) have found that people tend to make internal attributions of causation to explain an actor's success and external assignments to account for his failure.

Our results fail to confirm this correlation. While our data yield a correlation in the predicted direction, the association is statistically insignificant.

One possible explanation for these divergent results relates to the nature of the attributional situation. As we have mentioned previously, most laboratory studies of the attribution of causation for success and failure have consisted of situations in which it is clear whether the actor has succeeded or failed. In our study, the extent of the actor's achievement was more ambiguous, as it often is

in "real life." Judges were presented with equivocal evidence concerning Duddy Kravitz' success or failure. Thus, their judgments of his achievement may have been made with less certainty. It is conceivable that such incertitude on the part of some judges made it impossible for them to make causal attributions that were distinctively internal or external. This would account for the low association between judgments of success and the assignment of causation.

A second potential explanation of our inability to replicate previous research is associated with the nature of the achievement situation. The majority of experimental studies that we have reviewed have examined the assignment of causation for success or failure at instrumentally-oriented tasks such as solving a puzzle or passing an examination. In such tests, success-failure has a clear referent. However, in life outside the laboratory, and in our study, there are indications that we use many criteria to assess the success or failure of an actor. For example, some attributors considered Duddy Kravitz' mistreatment of his friends to be an instance of failure. This may be interpreted as a socio-emotional desideratum for judging an actor's success or failure.

It may be that the positive correlation between judgments of success and internal causal attributions holds only for instrumentally-oriented achievement situations. This explanation is speculative inasmuch as no previous research has considered this question. Our research provides no firm basis for confirming this possibility. Frequently, subjects in our study invoked various criteria to justify their judgments of success or failure. Since we had not anticipated

this possibility, no record was kept in coding the data to indicate whether the loci of their attributions varied according to the criteria that were articulated.

These potential explanations of the divergence of results between our investigation and previous research suggest the need for further research that addresses two problems. First, it may be fruitful for students of attribution to investigate the correlation between judgments of success and the assignment of causation while varying the degree of ambiguity in the achievement situation. Second, this correlation should also be examined to ascertain whether different types of achievement situations influence the association. That is, studies should be designed that enable us to compare these correlations for instrumentally-oriented achievement conditions with those derived from socio-emotional achievement settings.

Locus of Control. Laboratory studies of the effect of locus of control upon an individual's attribution of causation for another person's behavior have produced contradictory results. While some have reported a positive correlation between internal attributions of causation and internal control orientation, several investigations have found the two constructs to be unrelated. Our data reveal a statistically insignificant, positive correlation between these two variables. There is no apparent explanation for the variability in results concerning this relationship. Unfortunately, the present study offers no clues for the solution of this puzzle except variation in the attributional setting.

The Interaction of Success-Failure and Liking-Disliking. With regard to the interaction of success-failure and liking-disliking, our study confirms the results of experimental research (see page 156). Judges make internal attributions to explain the successes of liked actors and the failures of disliked actors. They make external attributions to account for the failures of appreciated actors and the successes of disliked actors. This provides a strong indication that an individual's judgments of an actor's success or failure, coupled with his or her appreciation of that person, influence the attribution of causation in a manner consistent with behavior that has been recorded in laboratory settings. Here, there is compelling evidence that the results of experimental studies are generalizable to the more ambiguous conditions of everyday life.

The Interaction of Success-Failure and Locus of Control. The joint effect of an attributor's locus of control orientation and his judgment of another person's success or failure replicates results documented by Gilmor and Minton (1974). Internally controlled subjects are more likely to attribute success to internal sources than are externally controlled individuals; however, internals and externals do not differ in their attributions of failure.

While this pattern of interaction is divergent from the one most commonly reported in previous experimental studies (internals make more internal attributions for failure than do externals; no differences occur for success), we have suggested (page 161) that situational context may significantly influence this interactive combination. Given the attributional setting of our study, the resultant

joint effect is explainable. Thus, it appears that the strong interaction of these two constructs has validity beyond the laboratory.

Further research in more natural settings may enable students of attribution to ascertain whether certain features of the situation affect the interaction pattern. Again, such investigations might profit from a careful consideration of the type of success or failure being judged by the attributors.

Summary. Given these findings, we tentatively conclude that the attribution theory predictions that were tested do obtain outside the laboratory. We have suggested that the main effects of locus of control and judgments of success-failure may be attenuated in vague attributional contexts. The positive, but insignificant, correlations of each of these constructs with the attribution of causation indicate that there is reason to accept the validity of some of the principles of attribution theory. Stronger support for this position emerges from our success at replicating the success-liking interaction that has been found in experimental studies. Additionally, our data confirms the success-locus of control pattern of interaction reported by Gilmor and Minton (1974).

Our results indicate the need for more research that tests these principles in non-experimental settings that are less artificial. Such replications may clarify the nature of the locus of control-success joint effect.

Are Causal Assignments for Success and Failure Influenced More by Variable Aspects of the Attributional Setting or by Cognitive Traits of the Attributor?

Among some of the contingencies that vary across attributional settings, we have examined the impact of (a) judgments of an actor's success or failure, and (b) the attributor's appreciation of the actor. These judgments are influenced by the attributional setting in the sense that actors, and therefore their actions and characteristics, vary from situation to situation. On the other hand, we have also investigated the impact of stable predispositions of the attributor upon his assignment of causation. Specifically, we have been concerned with judges' locus of control and degree of psychological differentiation. The issue, then, is whether variable aspects of the situation or stable cognitive traits of the attributor are more powerful predictors of attributional tendencies.

Analysis of the results of our investigation prohibits a direct answer to the question posed. Since the main effects of the four independent variables are all negligible, it is impossible to say that cognitive traits are more influential than variable aspects of the situation or vice versa. Independent of each other, neither of these two factors is sufficient to influence the attribution of causation. Rather, consideration of interaction effects seems to provide the best answer to our question.

In order to assess which interactions have the greatest impact upon the assignment of causation, one must examine the "saturated" regression equation consisting of the four main effects and eleven interactions. This equation provides measures of the impact of

each effect, controlling for all others in the regression. The data indicate that three joint effects account for a preponderance of variance in the assignment of causation (see Table 39). The liking-success interaction explains 12.73 percent of the variance while the success-locus of control and success-psychological differentiation joint effects account for 11.58 percent and 9.32 percent, respectively.

These data suggest a tentative conclusion. In ambiguous attributional settings, an individual's locus of control and degree of psychological differentiation may predispose him to structure in some manner the information derived from his conceptions of the situation. In other words, these stable traits may act as a "cognitive filter" of the individual's assessment of a vague situation. In the case of the locus of control trait, the data suggest that attributors assign the causes of success in a manner consistent with their cognitive predispositions.

Regarding psychological differentiation, there is some evidence to indicate that field independent subjects are less influenced by their affective reactions toward an actor than are field dependent persons. This finding conforms to Witkin's hypotheses and previous research results. Thus, these cognitive traits appear to assist attributors in organizing their conceptions of other actors in complex situations when they assign causation for others' actions.

The influence of psychological differentiation on the attribution of causation has not been comprehensively examined as yet. Other than the research presented in this dissertation and the studies conducted by Lefcourt, few investigations have considered this construct to be a potential predictor of the assignment of causation. Yet, given

the theoretical and empirical grounds for expecting this perceptual variable to affect such cognitive work as assigning causation, this lack of attention deserves attention. Witkin and Goodenough (1977) report that field dependent individuals make greater use of external social referents, but only when the situation is ambiguous. Their review of the literature on this subject indicates that attribution theorists might find it fruitful to include this construct in their research.

What is the Nature of the Relationship Between Locus of Control and Psychological Differentiation?

Our investigation fails to find any significant linear or curvilinear relationship between these two constructs. In addition, factored sub-scales of locus of control do not appear to be correlated with psychological differentiation. Our finding suggests that the relationship between a perceptually based measure of thinking and other cognitive operations need not correlate, depending on how those operations are measured.

While the interaction of these two variables does not exert a significant impact upon the attribution of causation, the fact that the joint effect is in the direction predicted from our theoretical arguments suggests that this merits further consideration. It may be that the specific nature of the attributional setting in our study was not of the sort that might make differences in psychological differentiation apparent. Again, we advocate the development of other research studies that attempt to document the types of situations that elicit differences in attributional behaviors from actors with varying

degrees of psychological differentiation. Witkin and Goodenough (1977) review many experimental studies that report differences in behavior that are a function of field dependent people's tendencies to make greater use of external social referents. The similarity between this tendency and characteristics of individuals with an external locus of control suggests that it may be informative to examine further the interaction effect of these two constructs on the attribution of causation.

What is the Nature of the Relationship Between a Judge's Appreciation of an Actor and his Judgments of that Person's Success or Failure?

Our research strongly indicates that one's liking or disliking of an actor is tangled with his judgments of that actor's success or failure. The present study suggests that many individuals do not, and possibly cannot, separate these judgments.

There are two competing interpretations of this correlation. First, it may be that the instruments used to measure these two constructs could not separate judgments of success and failure from appreciation of the actor. We have noted in Chapter 4 that some judges invoked criteria that were related to Duddy's sociability as measures of his failure. To this extent, collinearity between these independent variables is not surprising. This reflects a chronic problem experienced by social psychologists: the difficulties of measuring social psychological constructs. A more detailed discussion of this problem will be presented later in this chapter.

A second possible interpretation of this correlation is not that the relationship is due to measurement error, but rather, that the

association reflects people's actual inability to differentiate between judgments of success and judgments of affection when evaluating others. Two considerations justify this interpretation. First, the correlation between these two measures is not so high as to conclude that both instruments measure the same phenomenon. While many of the subjects in this study liked Duddy Kravitz and judged him to be successful or disliked him and viewed him as a failure, a significant number of judges liked him despite his judged failures or disliked him although he was deemed to have succeeded. This suggests that our measures were able to distinguish appreciation from judgments of success.

A second reason for assuming that judges may not compartmentalize their appreciation of an actor and their assessments of his achievement is based on theoretical premises. There is a considerable body of social psychological theory and research that confirms the operation of "halo" effects, tendencies toward cognitive balance, and attempts to reduce cognitive dissonance. These perspectives contain principles that account for the positive correlation between these concepts.

Ironically, these explanations of the association between appreciation and judgment of success also point to a gap in our social psychological knowledge. They fail to account for the cognitive behavior of those individuals whose affective evaluations of a character are not in concert with their evaluations of his achievement. For example, they provide no reasonable explanation for the individuals in our sample who liked Duddy Kravitz but nontheless thought he had failed. This indicates the need for research that examines the antecedents of such "out-of-balance" judgments. Such studies might

generate propositions that explain the overlap of these constructs in ambiguous social situations.

B. IMPLICATIONS

The research that has been reported here has various implications. The modest predictive abilities of the locus of control and psychological differentiation constructs raise some questions concerning their utility in accounting for variation in the attribution of causation. Our success at replicating those laboratory studies that have examined the associations among success-failure, liking-disliking, locus of control, and the attribution of causation suggests that there is value in testing other attribution propositions in more realistic settings. Additionally, our findings have implications for other areas of psychological investigation.

The Predictive Power of Stable Traits in Attribution Research

We have noted that psychological differentiation exhibits no significant effect upon the attribution of causation. Further, our data indicates that locus of control influences causal assignments only in interaction with judgments of success-failure. There are three possible explanations of these results: (1) These constructs are inadequately measured. (2) The concepts themselves are not well conceived. (3) The context of the attributional setting determines whether these dispositions have any impact upon the attribution of causation.

Instrument Fragility. In discussing the methodology of our study, we indicated that there exist several different measures of field independence-dependence: tilting room-tilting chair, rod and frame tests, draw-a-person tests, and embedded figures tests. While many psychologists have argued that embedded figures tests are valid measures of psychological differentiation, others have asserted that these instruments may not be interchangeable. For example, Vernon (1973) reports that personality and interest test correlates of the rod and rame test are quite different from those of embedded figures tests. These are different perceptual tasks and they need not be expected to correlate in the same way with different variables.

Similar problems exist for measures of locus of control. There exist several variations of Rotter's original scale. Whether these different instruments measure the same construct is debatable. This problem of measurement is exacerbated by the many attempts to derive sub-scales of control by factor analyzing Rotter's original instrument. The fact that various researchers have been able to extract different factors from the same scale suggests that the measure may tap more than one dimension. A problem that plagues research on locus of control is that there have been few replications of any studies that have derived factored sub-scales. This situation suggests that one ought to be cautious in relying on these measures.

Thus, it may be that the modest correlations that we observe in our data are the result of instrument fragility. That is, the constructs that are proposed by Rotter and Witkin et al. may be inadequately measured. While there seems to be no means of knowing if this is the case, it is a possibility that researchers must consider

when interpreting results that fail to confirm their hypotheses. The fact that there is debate over the equivalence of various measures of locus of control and psychological differentiation seems to attest to some psychologists' concerns about the fragility of these measurement instruments.

Concept Fragility. Consideration of the validity of the measure of a construct is inextricably related to concern over the theoretical nature of the concept. As Fiske (1973:92) argues:

> The empirical investigation of construct validity assesses the validity of the integration of method with the construct, that is, the validity of that form of the contruct which is measured by the test. Hence, the empirical validation of a personality construct is possible, in principle, provided the investigation employs a measuring procedure which has been linked to the construct and its conceptual context.

The status of psychological differentiation has been questioned on these grounds by various critics. Nisbett and Temoshok (1976) have noted that the data base of this construct consists mainly of tests that have a heavy spatial component. That is, while some researchers have argued that field independence-dependence is a significant predictor of conceptual differences, its measures have referents that are purely perceptual in nature. In the same vein, Zigler (1963) and Sherman (1967) have asserted that the use of this construct to account for conceptual differences is unwarranted, both theoretically and empirically. Of course, there is no a priori reason why our perception of the world ought not to correlate with our conception of it.

In response to these attacks, Witkin and Goodenough (1977) document the impact of psychological differentiation on interpersonal

orientation, social skills, and cognitive analysis. Their presentation suggests that these authors have become sensitive to these earlier criticisms. As a result, they place the concept of field independence in a context that stresses a direct association between perceptual and conceptual behavior. Thus, their description of the concept:

> Field dependence-independence, conceived as an expression of the self-nonself aspect of differentiation, has obvious implications for interpersonal behavior. Experience of one's own self as separate and distinct from that of others, and, with it, reliance on internal referents, are likely to make for autonomy in social relations. In contrast, a less delineated self and primary reliance on external referents limit personal autonomy. Whether internal or external referents are given greater emphasis affects, in turn, the individual's orientation toward the main source of external referents—other people.

Witkin and Goodenough cite numerous studies that substantiate their claim that field independence-dependence is correlated with various classes of interpersonal behavior that is conceptual in nature. Therefore, it seems that there is little reason to suppose that the modest associations reported in our investigation may be attributed to concept fragility. Rather, it appears that our results may be a function of the fragility of the measurement instrument to which we have already alluded. Alternatively, our insignificant findings may obtain as a function of the particular context of the attributional setting. This possibility will be assessed shortly.

Turning to the concept of locus of control, a review of the theoretical foundations of this construct reaffirm our original position: we would expect this variable to have a main effect upon the attribution of causation, to interact with judgments of success, and to interact

with success-failure and appreciation of an actor. While only the second prediction is confirmed by our data, the results of the other two tests were in the anticipated direction but were statistically insignificant. This suggests that our conceptualizations of these relationships may have empirical warrant. As well, the explanatory power of the locus of control construct in interaction with success-failure is considerable. Thus, the concept does not appear to be a fragile one.

The Possibility of Trait-Situation Interactions. Many psychologists (for example, Fiske, 1961; Messick, 1973; Wyer, 1974) have argued that the correlation between personality traits and behavior may be affected by the context of the situation in which individuals find themselves. Mischel (1973) has suggested that such cross-situational variability may be indicative of a refined facility for discriminating among a variety of social settings. As Bem and Allen (1974:517) assert, "...if some of the people can be predicted some of the time from personality traits, then some of the people can be predicted some of the time from situational variables."

This possibility has implications for our research. Witkin and Goodenough (1977) report that conceptual differences due to field independence-dependence seem to obtain only in ambiguous situations. The issue then becomes one of determining what constitutes ambiguity for the conceiver. Presumably, this dimension is not a dichotomous one; that is, one would expect there to be degrees of vagueness. While we have argued that the attributional setting of our investigation was an ambiguous one, it may be that it was not sufficiently vague to

elicit differential responses from field independent as opposed to field dependent subjects.

If this is indeed the case, then there is need for a systematic investigation of what constitutes ambiguity in social situations. Knowledge of the nature of the interaction between situations and psychological differentiation is likely to enhance the psychologist's ability to predict the behavior of individuals on various conceptual tasks such as the attribution of causation.

Our study also indicates that the context of the attributional setting interacts with locus of control. It is reasonable to assume that one's appreciation of an actor and one's judgments of that actor's success or failure are determined, in part, by the behavior of that actor in the situation. As well, we have also argued that such judgments are influenced by the criteria that judges use to assess another person's achievement. Since locus of control interacts with success-failure in our investigation, it is logical to assume that the nature of this joint effect is partially determined by the nature of the situational contingencies. Indeed, the pattern of interaction between locus of control and success-failure was explained with reference to the nature of the attributional context (see page 161).

Once again, this suggests that there is merit in attending to the interaction of relatively stable dispositions with aspects of the attributional context. This is by no means an easy task. Psychologists who undertake such a responsibility will require some type of theoretical framework that can provide a systematic classification of various situations. The major problem may be the determination of

what magnitude of situational difference leads to variability in the impact of these cognitive traits.

Summary. We have suggested three possible explanations of the modest impact of relatively stable cognitive dispositions on the attribution of causation. Our research cannot directly evaluate these interpretations; rather, we can only make inferences as to the feasibility of each.

We have argued that there are sufficient theoretical and empirical grounds for discounting concept fragility as the source of weak correlations between cognitive styles and the attribution of causation. However, the predictive power of the locus of control and psychological differentiation constructs may be limited by instrument fragility. Given the criticisms of the various attempts to measure these stable predispositions, the utility of these concepts is limited by their imperfect measurement.

The third explanation for the low associations generated from our data rests on the possibility that locus of control and psychological differentiation have predictive power only in certain situations. This argument has been espoused by many students of personality psychology. Additionally, we have argued that there is some evidence suggesting that this is the case for the locus of control-judgments of success interaction pattern that appears in our study.

Testing Attribution Theory in More Natural Settings

Our investigation represents one of the first attempts to test attribution hypotheses in more realistic situations. By far the majority of studies of the assignment of causation have used an

experimental research design in the laboratory. The research presented here assesses the accuracy of selected attribution propositions in a situation that approximates everyday life.

Our results indicate that, in ambiguous conditions, attributors assign causation for success and failure in a manner similar to those individuals who find themselves confronted with situations and information that are less vague. As well, the influence of situational contingencies on interactions among cognitive traits and judgments of others has theoretical importance in the more vague context. Individuals may clarify their conceptions in nebulous conditions through "cognitive filtering" on the basis of their predisposed ways of thinking.

Our investigation is important in so far as it points to the need for further attempts to test attribution propositions in the field. Our research has examined only a few hypotheses that have been generated by this perspective. There are many more that could be assessed in more realistic settings. Such replications may add to the validity of attribution theory as an explanatory paradigm in social psychology. While other theories such as cognitive dissonance and cognitive balance have been tested in field experiments and in realistic settings, little work of this kind has been initiated by researchers interested in the attribution process. Until more studies replicate laboratory results in realistic settings, the utility of the attribution paradigm may remain in doubt.

Potential Applications

The possibility that cognitive styles interact with less personal factors to influence causal attributions suggests that many other judgmental behaviors may be similarly affected. For example, there have been several attempts to examine jury behavior in simulated settings. Most of these studies have considered characteristics of defendants and jurors as determinants of verdicts. It may be profitable for researchers to investigate whether cognitive traits such as locus of control or psychological differentiation affect juror's decisions. Additionally, research might be useful if it were to examine whether the impact of these cognitive styles varied with the content of the situation; that is, with the degree of situational ambiguity, the complexity of the issues, or the severity of the alleged crime.

If, as we suspect, cognitive predispositions influence individuals' judgements in vague situation, this suggests an interesting possibility concerning people's conceptions of the world. In circumstances where persons are confronted with contradictory information or unclear data about another individual's behavior, our research suggests that the conceiver may interpret the situation in accordance with his own cognitive predispositions. If this is so, then we may achieve a better understanding of how people arrive at different conclusions given the same facts. Thus, one might do well to be cautious about the possibilities of "objective" social judgments in our everyday encounters. While we commonly ascribe disagreements in judgments to difference in values, it may be that cognitive predispositions represent additional, and less malleable, sources of people's divergent assessments of the same information.

C. CONCLUSION

The results reported in this investigation reinforce the notion that our conceptions of the world are influenced not only by the stimuli that we perceive but also by relatively stable cognitive styles that "order" or "filter" those perceptions. That is, conception is determined by the interaction of perceptions and cognitive predispositions.

This idea is not new. Many social scientists have examined the joint effects of cognitive processes and situational characteristics as determinants of various behaviors. Our research implies that it may be inadvisable for social psychologists to focus solely on one of these factors to the neglect of the other.

The ways in which human beings assign causation are complex. Such attributions involve the consideration of information that is, in part, derived from the individual's conceptions of the world. Students of attribution have been unable to document entirely the dynamics of this process. This dissertation represents a contribution to the solution of this puzzle. It advocates that researchers in attribution broaden their investigations to include greater consideration of the impact of more stable cognitive characteristics of the individual upon his assignments of causation.

As well, our investigation indicates that there is merit in testing attribution propositions in more natural settings. Our research results substantiate the validity of attribution predictions outside of the laboratory. This suggests that more research of this nature may

further establish the utility of attribution theory as a perspective for predicting and understanding how people assign causation for human behavior.

Attribution theorists often refer to these subjects as "naive psychologists." The attribution theorist and the "naive psychologist" engage in similar tasks: both attempt to explain the sources of other people's behaviors by reference to internal states of the actor or to situational contingencies. In the same way that the "naive psychologist" often attends to characteristics of the actor, the student of attribution may improve his predictive power by considering correlates of causal assignment that are more personal in nature. Unlike the "naive psychologist," the attribution theorist often analyzes the determinants of behavior in a controlled, laboratory environment. This dissertation suggests that the generalizability of the attribution paradigm might be enhanced if the researcher, like his "naive" counterpart, were to engage in identifying the correlates of causal assignment in less controlled, more natural settings.

This dissertation opens new paths towards the understanding of the attribution of causation. Further investigation of the possibilities suggested here will indicate whether they are fruitful directions for attribution theorists.

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APPENDIX A

DATA COLLECTION MATERIALS

Interview Schedule

READ TO SUBJECT:

The purpose of this interview is to find out your opinions and attitudes about Duddy Kravitz. I'll be asking you questions about whether you liked or disliked him and whether or not you thought Duddy was successful. We are going to tape record this because it is much easier than trying to write down all your comments. These tapes will then be transcribed and any reference to your name will be deleted. After we finish this interview, I have a short questionnaire that I would like you to answer. Then, I'll tell you what this research project is all about.

I. Demographic Information (Record on index card)

1. Record subject's sex. (M or F)
2. HOW OLD ARE YOU? (Age in years)
3. WHAT WAS YOUR FATHER'S OCCUPATION? (Record as detailed as possible)
4. DO YOU REGARD YOURSELF AS BELONGING TO ANY PARTICULAR RELIGIOUS OR ETHNIC GROUP?

START TAPE RECORDER

II. Affect Questions

1. IS DUDDY THE KIND OF PERSON YOU LIKE OR DISLIKE?
   (WHY?) (WHAT DID YOU LIKE/DISLIKE ABOUT HIM?)

2. WOULD YOU WANT TO BE SIMILAR TO DUDDY?
   (WHY/WHY NOT?)

3. IS DUDDY THE KIND OF PERSON YOU ADMIRE?
   (WHY/WHY NOT?)

4. CAN YOU SEE YOURSELF BECOMING FRIENDS WITH DUDDY?

5. DO YOU HAVE ANY FRIENDS WHO ARE SIMILAR TO DUDDY?
   (IN WHAT WAYS ARE THEY SIMILAR/DIFFERENT?) (IS THAT A POSITIVE OR NEGATIVE ASPECT?)

6. DO YOU LIKE BEING AROUND PEOPLE WHO RESEMBLE DUDDY?
   Yes: (WHY? WHAT IS IT ABOUT THEM THAT ATTRACTS YOU?)
   No: (WHY NOT? WHAT IS IT ABOUT THEM THAT YOU DON'T LIKE?)

7. DO YOU THINK THAT DUDDY IS WELL-ADJUSTED?

8. WOULD YOU RECOMMEND DUDDY FOR A RESPONSIBLE JOB?

9. HOW MATURE IS DUDDY?

10. DO YOU THINK THAT MOST PEOPLE WOULD REACT FAVORABLY TO DUDDY AFTER A BRIEF ACQUAINTANCE?

11. WOULD YOU VOTE FOR DUDDY IN A GROUP OR CLASS ELECTION?

12. IS DUDDY THE KIND OF PERSON WHO QUICKLY WINS RESPECT?

13. HOW INTELLIGENT IS DUDDY?

III. Success-Failure

1. DO YOU THINK THAT DUDDY KRAVITZ WAS A SUCCESSFUL PERSON OR A FAILURE? (IN WHAT RESPECTS DID HE SUCCEED/FAIL? CAN YOU THINK OF EXAMPLES FROM THE MOVIE?)

IV. Attribution of Causation

1. WHY DO YOU THINK THAT DUDDY SUCCEEDED/FAILED?

Succeeded: (HOW MUCH OF HIS SUCCESS WAS DUE TO GOOD LUCK?)
(DO YOU THINK DUDDY'S ABILITIES OR SKILLS HAD ANY EFFECT?)
(TO WHAT EXTENT WAS HIS SUCCESS DUE TO OTHER PEOPLE'S HELP?)
(HOW MUCH OF HIS SUCCESS WAS DUE TO HIS OWN EFFORTS?)
(IS THERE ANYTHING ABOUT HIS PERSONALITY THAT HELPED HIM SUCCEED?)

Failed: (HOW MUCH OF HIS FAILURE WAS DUE TO BAD LUCK?)
(DO YOU THINK THAT HE MAY HAVE FAILED BECAUSE OF LACK OF ABILITY?)
(DID THE INVOLVEMENT OF OTHER PEOPLE CONTRIBUTE TO HIS FAILURE?)
(DID HE FAIL BECAUSE OF LACK OF EFFORT?)
(IS THERE ANYTHING ABOUT HIS PERSONALITY THAT LED HIM TO FAIL?)

Instructions to Coders

1. Affect Questions: For each of the fourteen questions relating to affect, read the subject's response. Then, attempt to place his response on a five-point continuum where:
   1 = extreme dislike; responses that indicate only a negative reaction to Duddy and that indicate some intensity of reaction
   2 = moderate dislike; responses that generally indicate disapproval of Duddy; this code applies when subject indicates that he disliked Duddy most of the time but saw one or two positive things about him; this code applies when the degree of dislike is not strong
   3 = middle response; code as 3 if subject cannot make a decision about liking or disliking or if subject expresses no affective reaction whatsoever
   4 = moderate like; responses that generally indicate approval of Duddy; this code applies when subject indicates that he liked Duddy most of the time but saw one or two negative things about him; this code applies when the degree of liking is not strong
   5 = extreme like; responses that indicate only a positive reaction to Duddy and that suggest some intensity of reaction

2. Success-Failure Questions: There are three procedures for coding responses related to assessments of Duddy's success-failure.
   A. Global rating: Read over all the subject's responses relating to Duddy as a success or failure. After reading these, attempt to place the respondent's general reaction to Duddy on a

five-point continuum where:

1 = total failure; responses that indicate that Duddy failed in all aspects

2 = mainly a failure; responses that indicate that Duddy failed in most important aspects or that whatever successes he had were of minor importance when compared to his failures

3 = middle response; indicates that subject could not make up his mind or cites as many successes as failures

4 = mainly a success; responses that indicate that Duddy succeeded in most important aspects or that whatever failures he had were of minor importance when compared to his successes

5 = total success; responses that indicate that Duddy succeeded in all aspects

B. Statement rating: For each statement that the respondent makes, circle it and label it as:

F = a statement indicating that Duddy failed

S = a statement indicating that Duddy succeeded

0 = a statement that indicates neither success nor failure

After completing this, total up the number of F's, S's, and 0's.

C. Implied criterion (a) of success-failure: Each respondent has been asked to suggest examples from the movie that substantiate his judgment of success-failure. For each example provided by the subject, code the scene to which the respondent refers. Thus, each example will receive a code of 1 to 23. For each example given, attempt to classify it according to what criterion of success-failure is being

implies by the respondent:

1 = wealth criterion: success-failure is judged on whether Duddy attained an economic gain or loss; this includes the acquisition of land, money, possessions, etc.

2 = security criterion: success-failure is judged on whether Duddy has provided for his future; this includes the saving of money, the making of long-term investments, etc.

3 = reputation criterion: success-failure is judged according to Duddy's resultant prestige, status, or "goodness" of character; this includes whether or not he is loved, admired, etc.

4 = skill criterion: success-failure judgments based on Duddy's ability or performance in the sense of being able to out-hustle others or out-smart them; this includes his ability to be a shrewd businessman, etc.

5 = contentment criterion: judgements of success-failure based on whether Duddy is contented, happy, satisfied, or seems to sense self-fulfillment, etc.

6 = other; any statement of criteria that does not fit the above scheme.

3. Attribution of Causation Questions: For the responses that subjects make in explaining why Duddy succeeded/failed, circle each statement and label it as:

I = a statement indicating that Duddy's success/failure was caused by or due to internal sources.

For failure, these might include:
a) a lack of effort
b) a lack of ability
c) something about his personality

For success, this might include:
a) that he worked hard, exerted effort
b) that he had ability or was skillful
c) something about his personality

E = a statement indicating that Duddy's success/failure was caused by or due to external sources.

For failure, these might include:
a) bad luck or chance
b) something about the situation
c) other people made him fail

For success, these might include:
a) good luck or chance
b) something about the situation (being in the right place at the right time)
c) other people helped him succeed

0 = a statement that attributes neither to external nor to internal sources.

After completing this, total up the number of I's, E's, and 0's.

This is a questionnaire that is intended to find out your attitudes about many things. Below, you will find 29 pairs of statements. For each pair, circle the statement that best describes your opinions.

1. a. Children get into trouble because their parents punish them too much.

   b. The trouble with most children nowadays is that their parents are too easy with them.

2. a. Many of the unhappy things in people's lives are partly due to bad luck.

   b. People's misfortunes result from the mistakes they make.

3. a. One of the major reasons why we have wars is because people don't take enough interest in politics.

   b. There will always be wars, no matter how hard people try to prevent them.

4. a. In the long run people get the respect they deserve in this world.

   b. Unfortunately, an individual's worth often passes unrecognized no matter how hard he tries.

5. a. The idea that teachers are unfair to students is nonsense.

   b. Most students don't realize the extent to which their grades are influenced by accidental happenings.

6. a. Without the right breaks one cannot be an effective leader.

   b. Capable people who fail to become leaders have not taken advantage of their opportunities.

7. a. No matter how hard you try some people just don't like you.

   b. People who can't get others to like them don't understand how to get along with others.

8. a. Heredity plays the major role in determining one's personality.

   b. It is one's experiences in life which determine what they're like.

9. a. I have often found that what is going to happen will happen.

   b. Trusting to fate has never turned out as well for me as making a decision to take a definite course of action.

10. a. In the case of the well prepared student there is rarely if ever such a thing as an unfair test.

    b. Many times exam questions tend to be so unrelated to course work that studying is really useless.

11. a. Becoming a success is a matter of hard work, luck has little or nothing to do with it.

    b. Getting a good job depends mainly on being in the right place at the right time.

12. a. The average citizen can have an influence in government decisions.

    b. The world is run by the few people in power, and there is not much the little guy can do about it.

13. a. When I make plans, I am almost certain that I can make them work.

    b. It is not always wise to plan too far ahead because many things turn out to be a matter of good or bad fortune anyhow.

14. a. There are certain people who are just no good.

    b. There is some good in everybody.

15. a. In my case getting what I want has little or nothing to do with luck.

    b. Many times we might just as well decide what to do by flipping a coin.

16. a. Who gets to be the boss often depends on who was lucky enough to be in the right place first.

    b. Getting people to do the right thing depends upon ability, luck has little or nothing to do with it.

17. a. As far as world affairs are concerned, most of us are the victims of forces we can neither understand, nor control.

    b. By taking an active part in political and social affairs the people can control world events.

18. a. Most people don't realize the extent to which their lives are controlled by accidental happenings.

    b. There really is no such thing as "luck."

19. a. One should always be willing to admit mistakes.

    b. It is usually best to cover up mistakes.

20. a. It is hard to know whether or not a person really likes you.

    b. How many friends you have depends on how nice a person you are.

21. a. In the long run the bad things that happen to us are balanced by the good ones.

    b. Most misfortunes are the result of lack of ability, ignorance, laziness, or all three.

22. a. With enough effort we can wipe out political corruption.

    b. It is difficult for people to have much control over the things politicians do in office.

23. a. Sometimes I can't understand how teachers arrive at grades they give.

    b. There is a direct connection between how hard I study and the grades I get.

24. a. A good leader expects people to decide for themselves what they should do.

    b. A good leader makes it clear to everybody what their jobs are.

25. a. Many times I feel that I have little influence over the things that happen to me.

    b. It is impossible for me to believe that chance or luck plays an important role in my life.

26. a. People are lonely because they don't try to be friendly.

    b. There's not much use in trying too hard to please people, if they like you, they like you.

27. a. There is too much emphasis on athletics in high school.

    b. Team sports are an excellent way to build character.

28. a. What happens to me is my own doing.

    b. Sometimes I feel that I don't have enough control over the direction my life is taking.

29. a. Most of the time I can't understand why politicians behave the way they do.

    b. In the long run the people are responsible for bad government on a national as well as a local level.